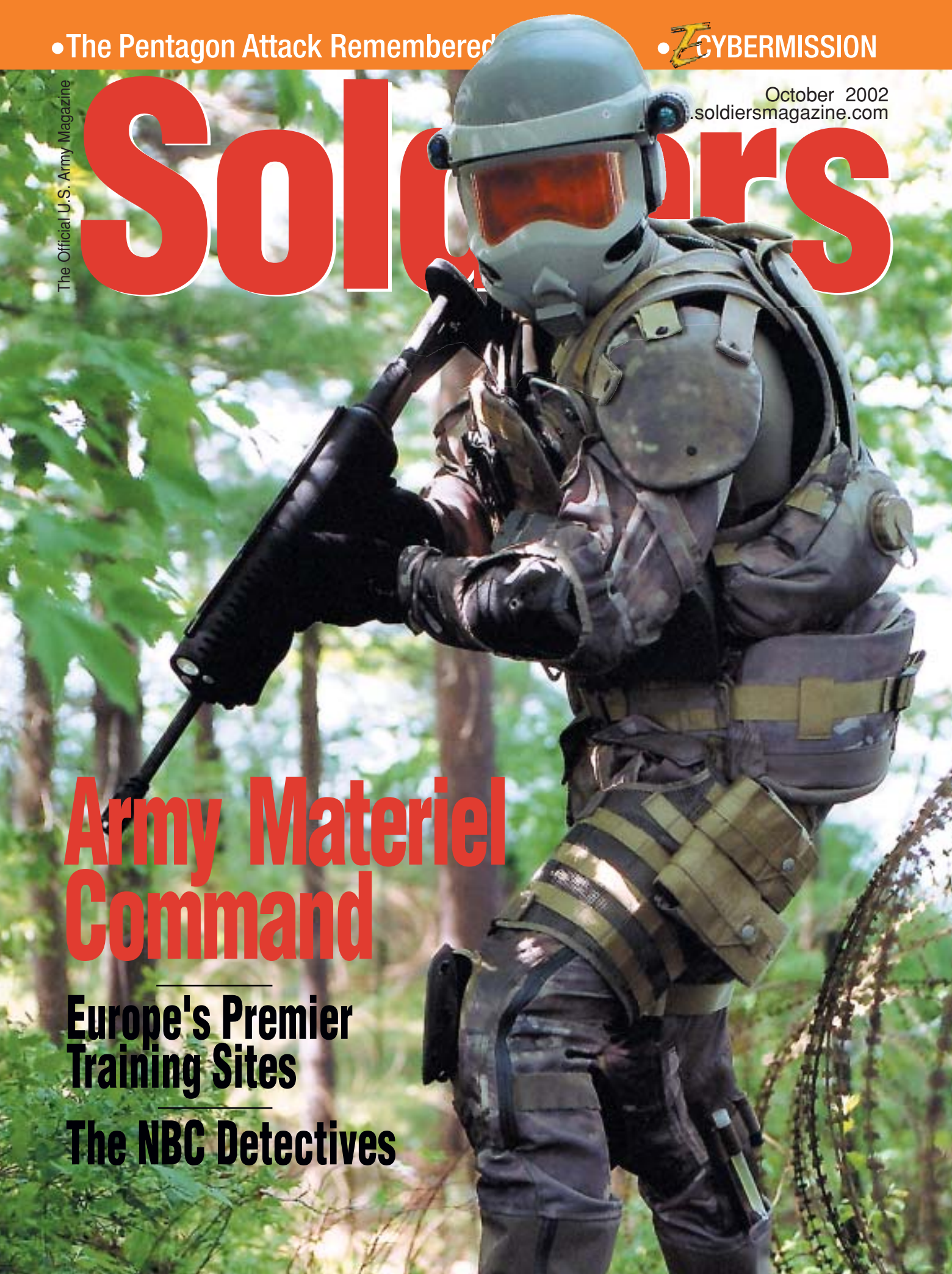
• The Pentagon Attack Remembered
• CYBERMISSION

The Official U.S. Army Magazine

Soldiers

October 2002
.soldiersmagazine.com



Army Materiel Command

Europe's Premier Training Sites

The NBC Detectives

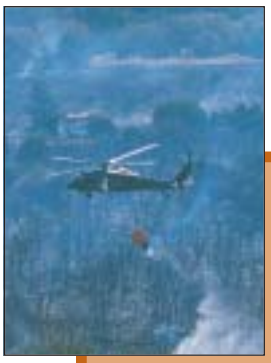
Soldiers

October 2002 Volume 57, No. 10

The Official U.S. Army Magazine

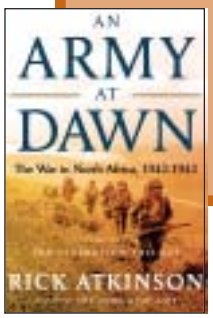
Printing: Gateway Press, Inc.

Soldiers (ISSN 0093-8440) is published monthly under supervision of the Army Chief of Public Affairs to provide the Total Army with information on people, policies, operations, technical developments, trends and ideas of and about the Department of the Army. The views and opinions expressed are not necessarily those of the Department of the Army. ■ Manuscripts of interest to Army personnel are invited. Direct communication is authorized to **Editor, Soldiers, 9325 Gunston Road, Suite S108, Fort Belvoir, VA 22060-5581**. Phone: DSN 656-4486 or commercial (703) 806-4486. Or send e-mail to **soldiers@belvoir.army.mil.** ■ Unless otherwise indicated (and except for "by permission" and copyright items), material may be reprinted provided credit is given to **Soldiers** and the author. ■ All photographs by U.S. Army except as otherwise credited. ■ Military distribution: From the U.S. Army Distribution Operations Facility, 1655 Woodson Road, St. Louis, MO 63114-6181, in accordance with Initial Distribution Number (IDN) 050007 subscription requirements submitted by commanders. ■ The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the department. ■ Use of funds for printing this publication was approved by the Secretary of the Army on Sept. 2, 1986, in accordance with the provisions of Army Regulation 25-30. Library of Congress call number: U1.A827. ■ Periodicals postage paid at Fort Belvoir, VA, and additional mailing offices. ■ Individual domestic subscriptions are available at $36 per year through the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. For credit card orders call (202) 512-1800 or FAX (202) 512-2250. ■ To change addresses for individual subscriptions, send your mailing label with changes to: Superintendent of Documents, Mail Stop SSOM, Washington, DC 20402. ■ POSTMASTER: Send address changes to the Fort Belvoir address above.



◄20

◄14



◄44

Check out Eybermission

▲17

www.soldiersmagazine.com

AMC Paving the way ...

FEATURES

DEPARTMENTS

Front cover: Objective Force Warrior is one of the many advanced systems under development by Army Materiel Command. — *Photo by Sarah Underhill*

◄4

"The terrorists chose this target hoping to demoralize this country. They failed. Within minutes brave men and women were rescuing their comrades. Within hours, in this building, the planning began for a military response. Within weeks, commands went forth from this place that would clear terrorist camps and caves and liberate a nation. And within one year, this great building has been made whole once again." — *President George W. Bush*

PHC Johnny Bivera, USN

Andre Hinton holds a flag while 1SG Curtis O'Neal looks on during the observance ceremony at the Pentagon Phoenix Project site.

The Pentagon Atta

LINDA SMITH will long remember her co-workers who died in last year's terrorist attack against the Pentagon, but she said she is now ready to move beyond grieving for them, and the survivor's guilt she has experienced during the past year.

Smith, who works for the Office of the Assistant Chief of Staff for Installation Management, was one of about 10,000 military members and federal civilians who marked the Sept. 11 anniversary at a ceremony near the site where the hijacked American Airlines Flight 77 hit the Pentagon.

As promised by President George W. Bush at a memorial service one month after the attack, the destroyed section, known as Wedge One, has been rebuilt in time for the one-year anniversary.

"Many civilian and military personnel have now returned to offices they occupied before the attack. The Pentagon is a working building, not a memorial," Bush said. "Yet, the memories of a great tragedy linger here. And for all who knew loss here, life is not the same."

More than 3,000 people died in the Sept. 11 attacks. Including those on Flight 77, 184 victims perished in the Pentagon attack. Department of Defense records show that victims of the combined attacks — on New York's World Trade Center, the Pentagon and Flight 93 that crashed in Pennsylvania — came from more than 80 nations, and from many different races and religions.

Bush said those victims did not die in vain, as their loss has moved a nation to action to defend innocents around the globe.

"The best way to remember the victims is to protect our liberties from those who would take them away," said Secretary of Defense Donald Rumsfeld.

Each of the ceremony speakers echoed the theme, that while life goes

Joe Burlas works for Army News Service.

on for most Americans, our country's military continues to face great challenges in defending freedom around the globe.

"I came to the presidency with respect for all who wear America's uniform," Bush said. "I have great confidence in every man and woman who wears the uniform of the United States of America. I am proud of all who have fought on my orders, and this nation honors all who died in our cause."

Rumsfeld listed several of the successes of the current war on terrorism that resulted from last year's attacks: 2,000 prisoners, many more than 2,000 terrorists killed in Afghanistan, and millions of dollars worth of terrorist funding found and frozen. He pointed out that the United States is not in the war alone. Some 90 nations have joined the coalition against terrorism, representing the greatest coalition in history, he said, as he thanked those partners for their support.

"The terrorists who attacked us have failed miserably — they lost before the first shot was fired," he said. "They failed because they did not achieve their objectives. They wanted Sept. 11 to be a day when innocents died — instead it was a day when heroes were born.

"Even as they wiped away their tears, Americans unfurled their flags," Rumsfeld said.

And Smith wiped away her tears once again at the remembrance ceremony.

"I needed to be here today to remember those who sacrificed their all for this great nation of ours," Smith said. "I will always remember that day, but now I can move on while never forgetting. I would give my life today, if that's what was needed for freedom, but it wasn't my time then and it isn't right now." □

PHC Johnny Bivera, USN

President Bush, Secretary Rumsfeld and other dignitaries joined the crowd in singing the National Anthem during the ceremony.

More than 13,000 people attended the service, which remembered those killed a year ago when terrorists crashed a hijacked airliner into the Pentagon.

SSG Marcia Triggs

ck Remembered

Story by Joe Burlas

2LT Morjan Montalvo, a tank commander with the 1st Armored Division's 2nd Bn., 37th Armor, in Friedburg, awaits an order to move out during unit training at Hohenfels.

Europe's Premier Training Sites

Story and Photos by Heike Hasenauer

THE Army's Combat Maneuver Training Center in Hohenfels, Germany — once used by Gen. Erwin Rommel to train his Afrika Corps for World War II, and operated by U.S. Army, Europe's 7th Army Training Command since the 1980s — is the premier training site for Army units in Europe.

Together with its firing-range assets at the Grafenwöhr Training Area, about an hour's drive from Hohenfels, the 7th ATC prepares soldiers for contingency operations anywhere within USAREUR's area of responsibility — the Balkans and the southernmost part of North Africa — said CPT Jeffrey Settle, a command spokesman.

As the smallest of the Army's three combat training centers — the others are the Joint Readiness Training Center at Fort Polk, La., and the National Training Center at Fort Irwin, Calif. — CMTC encompasses only 100 square miles, compared to 180 at JRTC and 1,000 at NTC. But CMTC, located about 50 miles from the Czech border, is every bit as high-tech and valuable in training soldiers for combat as the others, Settle said.

"The crown jewel of all the Army's training is the combat training centers," said 7th ATC chief of staff COL Robert Fulcher Jr.

Units in Europe travel 200 to more than 400 miles (from Vicenza, Italy) to come to Hohenfels, the primary maneuver area, and Grafenwöhr, the primary live-fire training area in Germany, Fulcher said. Annually, every designated task force in Germany visits Hohenfels at least once and Grafenwöhr twice.

While CMTC can accommodate up to brigade-sized combat teams, putting them through high-intensity combat scenarios to prepare for missions in places like Bosnia and Kosovo, its training is geared more toward squads, teams and companies, Settle said.

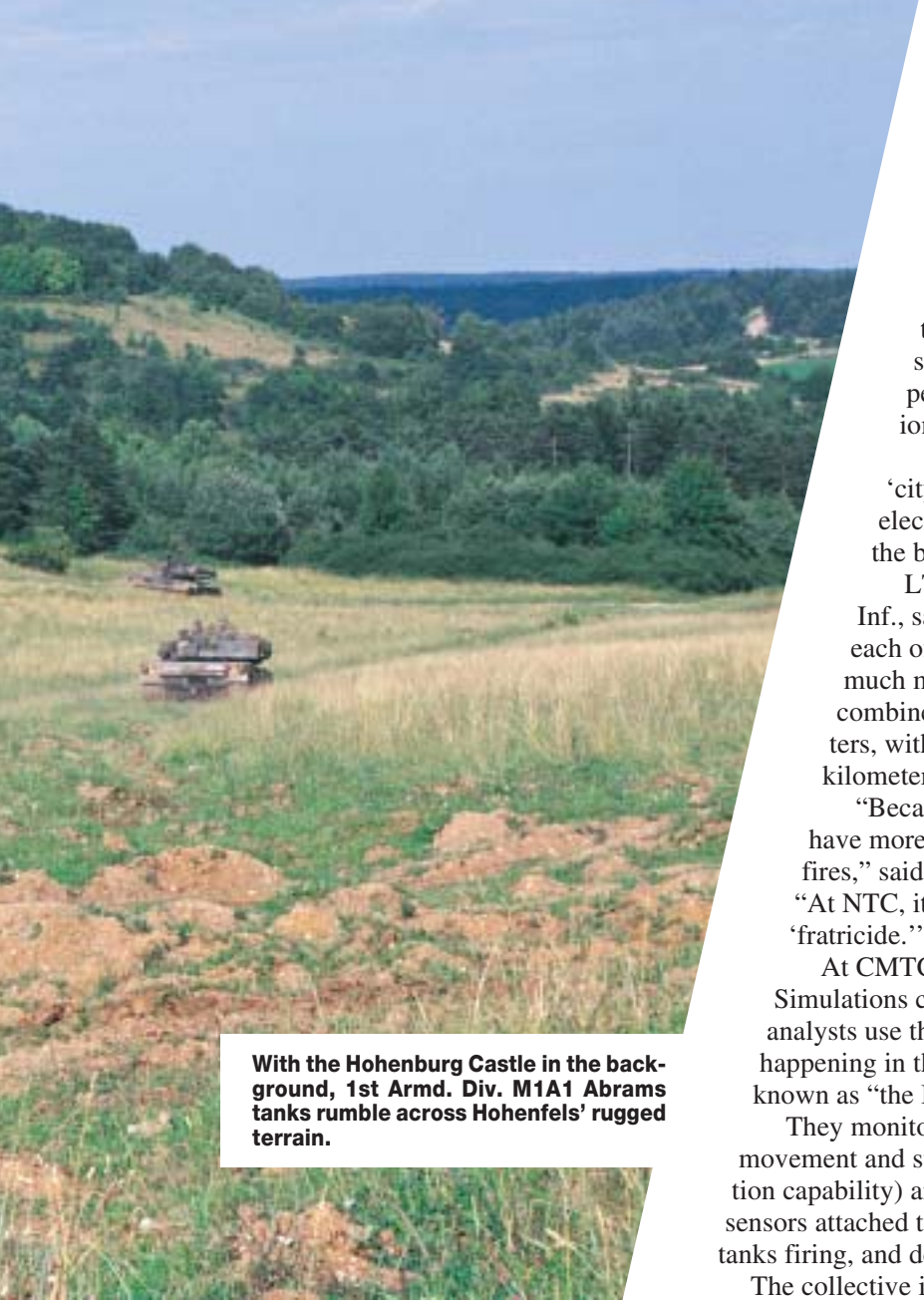
SSG Anthony Hunt, an opposing force tank commander whose mock T-80 tank was "killed" by blue forces, waits out an ongoing "battle" by planning future tactical moves.

7th ATC

They monitor various computer displays to determine (active, disabled or without communication capability) and

(Right) **Operators at Grafenwöhr's virtual training facility manipulate the graphics and special effects seen by soldiers training in the CCTT.**

(Far right) **An antitank gunner atop an OPFOR vehicle waits for a suitable target.**



With the Hohenburg Castle in the background, 1st Armd. Div. M1A1 Abrams tanks rumble across Hohenfels' rugged terrain.

Other training focuses on stability and support operations, as well as on terrorism and black-marketing.

Air Force and Marine Corps units also train at CMTC, as do units from European nations, Settle said.

To achieve realism in urban warfare training, CMTC offers five MOUT training sites, said CPT Brian Williams, of CMTC's permanent-party opposing force, the 1st Battalion, 4th Infantry.

"The premier MOUT site is a large, built-up 'city' called 'Ubungsdorf' that's complete with electricity, running water and video cameras inside the buildings to record every action," he said.

LTC Perry Helton, commander of the 1st Bn., 4th Inf., said soldiers are trained to fight differently at each of the combat training centers. "Here, training is much more conducive to dismounted infantry for a combined fight. At NTC, you can see for four kilometers, with nothing in the way. Here, if you get a one-kilometer range to shoot something, it's rare."

"Because we're training in such a compact area, units have more difficulty coordinating direct and indirect fires," said Williams, a former member of NTC's OPFOR. "At NTC, it's much easier to separate the forces to prevent 'fratricide.'"

At CMTC's Training Analysis Computer Support and Simulations center, better known as the "Stars Wars" center, analysts use the latest computer technology to follow what's happening in the 10-kilometer by 20-kilometer maneuver area, known as "the Box."

They monitor computer displays to determine vehicle movement and status (active, disabled or without communication capability) and gather other information from hundreds of sensors attached to vehicles. They can also "see" such actions as tanks firing, and determine whether the target has been "hit."

The collective information is provided to units at the end of every exercise in very precise after-action reviews that are tough to dispute, Settle said.

At another of CMTC's high-tech facilities, the Leader Training Center, simulation-driven staff exercises prepare leaders for their unit's training before the arrival of the main group of soldiers and their equipment.

Simulation centers throughout USAREUR, including one in Vicenza, contribute respective "battle" assets when they're needed, to realistically simulate scenarios from a corps battle to a joint theater of war. They play important roles in joint exercises in Europe involving the military forces of other nations.

At Grafenwöhr's Virtual Training Facility, "units training in the Close Combat Tactical Trainer can 'fire' millions of dollars worth of tank ammunition, without actually spending money," said USAREUR's simulation training NCO, SSG David Williams. In reality, it costs up to $4,000 to fire one training round, Williams said, and about $240 just to maneuver an M1A1 tank about a mile.

The graphics and special effects built into the CCTT are impressive, said

vehicle movement and status gather other information ...

OPFOR vehicles race toward BLUEFOR positions during a movement-to-contact exercise at Hohenfels.

senior operator Tim Maples. "I can make it 'rain' and give a crew limited visibility. If it rains long enough, I can make the fields impassable."

The $66 million simulation equipment has paid for itself six times over in tank-round savings alone," Williams said.

And, following actual field-training events, CMTC's instrumented command-and-control system is a valuable resource in demonstrating to a unit the effectiveness of its actions, said LTC Rich Totleben. "That's the hardest thing for an observer-controller to do.

"The system doesn't lie," Totleben said. "It can record entire tactical-radio network communications. So we can play back the communication between the commander and his units, allowing him to listen to his requests for movements." The system can even sense some simulated weapons effects, such as minefields and chemical agents.

"It captures losses and looks for trends," Totleben added, "to show how well tanks are firing and how many things were 'destroyed' by artillery, as examples." The system also provides a safety net. "When vehicles are tracking, we can find, through vector control, anyone who's lost."

Technological wizardry aside, soldiers up to their knees in mud in a field training event can benefit from "one of the greatest of CMTC's assets — the observer-controllers," said Settle.

The junior and senior officers have combat experience and are able to give soldiers realistic feedback about their training, said observer-controller MAJ Thomas McKevitt. "They recommend ways units might have done some things differently."

CMTC's OPFOR is structured as any other mechanized battalion, but augmented with additional assets to make it more fearsome, he said. It includes more infantry, engineer, military intelligence and air defense assets to challenge a brigade combat team in a high-intensity, combat-training scenario.

OPFOR players operate in a free-thinking capacity, "taking opportunities as they see them," McKevitt said. "Everybody wants to win, so we have to ensure there's no cheating. If an OPFOR vehicle drives through a 'minefield,' for example, we 'kill' the vehicle, because that's what would happen in real life. The same is true if a BLUEFOR vehicle is in the treeline and the OPFOR shoots it, but its MILES gear doesn't go off."

Additionally, Air Force personnel stationed at Hohenfels add to training realism by integrating close-air support. And a small airfield can accommodate a C-130, Settle said. A training area in Amberg is used as a logistics base for air assets, to provide more realistic distances over which units must move equipment and supplies.

Meantime, on the ground, about 70 role-playing civilians situate themselves at various locations on the "battlefield," tending gardens, driving vehicles to market or herding sheep. "During mission-rehearsal exercises to train units for actual missions, the civilians surge to about 200," Totleben said.

This added civilian element helps soldiers understand that people and their activities can't be ignored, he said.

At the same time, media on the battlefield grill soldiers for information. Mock international reporters expose soldiers to situations that will likely occur in real-life contingency operations and teach them how to respond appropriately.

Commanders planning to train their units at Hohenfels follow specific, USAREUR-directed training guidelines, but they decide what scenarios will be played out to hone their unit's specific skills, Settle said.

Before deploying to CMTC, soldiers undergo home-station training. Then they travel to Grafenwöhr to hone common-tasks skills, taking advantage of more than 40 live-fire ranges and some 60 artillery- and mortar-firing positions.

Other assets available to commanders include small-arms ranges, a land-navigation course, leadership-reaction course, obstacle course, nuclear-biological-chemical chamber and a drop zone.

The Aerial Weapons Scoring System allows aviators to train on Hellfire-missile firing procedures and gauge their rocket-firing skills without firing actual missiles.

At Hohenfels, companies spend roughly five days undergoing situational training exercises to prepare for 14 days of battalion-level operations against the OPFOR, Totleben said. "That's the point when we say, 'The gloves are off;' the OPFOR becomes aggressive." Six major and some minor "battles" fill the grueling weeks that follow.

It's all part of the 7th ATC's job to train USAREUR's soldiers for today's critical missions, wherever they might be, Totleben said. □

A line charge explodes over a simulated minefield to clear a path for advancing tanks during an exercise at Grafenwöhr.

WAR ON TERRORISM UPDATE

AMERICA and the War on Terrorism

Operation Noble Eagle

AT press time more than 36,895 Army National Guard and Army Reserve soldiers were on active duty in support of the partial mobilization. Reserve-component mobilization for Operation Noble Eagle exceeded 14,000 soldiers assisting Immigration and Customs officials at Canadian and Mexican border sites and participating in other security missions.

- June 21. Pentagon officials approve a publisher's request to produce a picture book titled "A Day in the Life of the United States Military," to commemorate activities of Operations Noble Eagle and Enduring Freedom. Photographers will visit Army posts Oct. 7. The book is scheduled to go on sale on Armed Forces Day, May 2003.
- June 26. Actor Michael Nouri, now staring in the Broadway musical "South Pacific," deliveres a $181,000 check to Defense Comptroller Dov S. Zakheim, to be used to aid victims of the Pentagon attack.

Operation Enduring Freedom

At press time nearly 56,000 active and reserve-component soldiers were deployed in 70 countries.

- June 31. U.S. and coalition troops searching eastern Afghanistan for al Qaeda and Taliban fighters continue finding ammunition caches and Soviet-era weapons in an area honeycombed with natural caves and man-made tunnels.
- July 1. Civil-affairs teams' assistance at local orphanages expands to weekly visits to bring food, medicine and school supplies. In Bagram and Mazar-e-Sharif, Afghanistan, CA teams reconstruct schools and set up medical equipment.
- July 8. Investigators wrap up a preliminary probe into the July 1 friendly fire incident in Oruzgan Province. The second stage of the investigation begins within 24 hours and includes a team of U.S. experts and members of an Afghan investigation board.
- July 9. A second battalion of 82nd Airborne Division paratroopers arrives at Kandahar Airfield to replace elements of the 101st Abn. Div.
- July 31. In testimony before the Senate Armed Services Committee, Defense Secretary Donald H. Rumsfeld and Central Command chief GEN Tommy Franks say the war on terrorism will require patience from Americans at home and courage from the nation's military men and women abroad.
- Aug. 5. Coalition aircraft monitoring the Southern No-Fly Zone strike an air defense command-and-control facility in southern Iraq.

PFC Zachory Arnold from the 11th Signal Brigade at Fort Huachuca, Ariz., receives an "Outback Special" at Kandahar Air Base, Afghanistan, on June 19. Chefs from a New York City Outback Steak House flew to Kandahar to provide a special meal to soldiers deployed in support of Operation Enduring Freedom.

SSG Robert Hyatt

1LT Tina Kroske from the 300th Mobile Public Affairs Detachment out of Atlanta, Ga., holds an infant in Kophisophi, Afghanistan, during a humanitarian/medical assistance mission in July.

SPC Patrick Tharpe

MAJ Cynthia Teramae

A special forces soldier greets admiring children in Maluso. Members of Joint Task Force 510 are in the Philippines to advise and assist in counterterrorism operations.

SPC Ann Marie Schult

SPC Michael Rewsakowski and PFC Brian Worth, both of Company B, 1st Battalion, 505th Infantry Regiment, answer questions on July 31 while recovering in the hospital from injuries sustained in a July 27 firefight near Khost, Afghanistan.

SGT Sean A. Terry

Soldiers from the 307th Engineer Co. at Fort Bragg, N.C., pull security and prepare to explore certain caves in the area of Keyki, Afghanistan. These caves were suspected of housing munitions and ordnance, as well as Taliban fighters.

Feedback

From the Editor

MATERIEL. Few words mean so much to a soldier. Merriam Webster's Collegiate Dictionary defines it as "Equipment, apparatus and supplies used by an organization or institution." But, to the Army Materiel Command, it means if a soldier shoots it, drives it, flies it, wears it or eats it, AMC provides it. In "Army Materiel Command — Paving the Way to the Army's Future," Soldiers' award-winning journalist Heike Hasenauer takes a look at the AMC's enormous responsibility and daunting mission.

For a look at materiel in action, Heike takes us next to the mud of Grafenwöhr and the dust of Hohenfels. In "Europe's Premier Training Sites," Heike showcases the 7th Army Training Command's proud history and important role in keeping U.S. Army Europe's fighting edge sharp.

In "The Dawn of the Modern Army," Steve Harding interviews Pulitzer Prize-winning writer Rick Atkinson about his upcoming book on the United States' often-overlooked World War II campaign in North Africa. Atkinson shows us how the lessons we learned there not only helped ensure later successes in the battle against Nazi Germany, but also would affect changes that result in the Army we see today.

John C Suttle

EOD in the Spotlight

I WAS most interested in your June articles "The Difference Between Life and Death" and "EOD in Afghanistan." It is always nice to see articles about a facet of military operations that often goes unremarked, and the photographs were first-rate.

I've always been at a loss to explain why those of us in the "bomb disposal" business ever get involved in it. I don't know that "honor and a sense of duty" (MSG Hamann's answer) fully covers it, but it's as good an explanation as any I've been able to come up with.

I have been involved in EOD since beginning my initial ammunition technical officer training in the United Kingdom in 1988, and it's been a very rewarding career choice. I heartily recommend it.

As a retired member of the Canadian Forces, now serving in the New Zealand Army, I was also pleased to see Canadian EOD personnel getting some ink as well.

Congratulations on a couple of great stories and a very enjoyable magazine.

Maj. David O. Buck, RNZALR
Via e-mail

Casualty Notification

YOUR June article "Reaching Out to the Bereaved" was an excellent look at a very serious subject.

However, the comment attributed to LTC Rita Salley that "...during the early years of the Vietnam War, when the Army had no certified death-notification or assistance program, and taxi drivers were commissioned to notify families...." does not appear to be a true statement. I was appointed as a casualty-notification officer (CNO) while assigned to Western Area, Military Traffic Management Command, with duty at Norton Air Force Base, Calif., in 1965 and 1966.

During my one-year tour I had at least six assignments to notify next of kin of casualties, all of whom had been killed or wounded in Vietnam.

CNO visits were followed by an official Department of the Army telegram confirming the information provided and, which were followed by the assistance provided by the casualty-assistance officer. My experience was that the Adjutant General's Casualty Assistance Office had a clear and serious program of casualty notification and assistance to next of kin at that time.

LTC Richard Robinson (Ret.)
Via e-mail

No Service for Athletes?

IN talking about West Point graduate and professional athlete Andy Lundbohm, the back cover of the July issue furthers the belief that officers, and especially U.S. Military Academy graduates, "get over on the system."

I am a 1992 USMA graduate and I wonder how, despite federal law requiring five years of active-duty service (Title 10, Section 4348 of the U.S. Code; see also AR 350-100, paragraph 2-2b) a USMA graduate can get out of his obligation so early. While commissioned into the Army Reserve (as all USMA graduates now are), Mr.

Kwaj Kudos

I JUST finished reading your completely satisfying July article on the Kwajalein Missile Range.

I lived on Kwaj from 1976 to 1980 as one of three young adults who had just graduated from high school. Because our parents were site managers of their companies, we secured jobs before arriving on Kwaj. This put us in a unique category, since to live there you had to work there, and what few jobs were not filled by contractors were usually filled by spouses. As a result, there was a 10-year gap in ages between Kwaj's high-schoolers and the average age of a contracted worker. The three of us filled that gap while stationed at one of the most beautiful places on earth.

Almost 22 years have passed since I left Kwajalein, and I have had the opportunity to travel and deploy to some beautiful and memorable places on this planet both as a civilian and as an Army officer. However, Kwajalein still retains its charm and allure — both of which your excellent article helped rekindle with thoughtful and comprehensive text, and multifaceted photos.

Thank you for taking this old "Meck Mouse, Roi-Rat, and Kwaj-Kat" back home again.

CPT Doug Duecker
Fort Jackson, S.C.

Lundbohm should have served the five years of active duty required by federal law. Obviously, he did not.

It's sad that the back cover article makes USMA's athletic programs look like a stepping stone to professional sports and not the laboratory for developing the future leaders of the soldiers reading Soldiers.

When GEN of the Army Douglas MacArthur said of USMA athletics, "Upon the fields of friendly strife are sown the seeds that upon other fields, on other days, will bear the fruits of victory" he was talking about applying USMA's lessons to combat, not to the professional ice hockey rink.

As a taxpayer, let alone a fellow graduate, I am embarrassed and infuriated that $250,000 of my tax dollars were used to develop a full-time professional athlete and not a full-time officer. If Roger Staubach could complete his active-duty commitment before becoming a professional athlete, every other USMA graduate can too!

CPT Joe Berger
Fort Bliss, Texas

More on the Beret

I AM an AGR National Guard recruiter, longtime reader and first-time writer.

The original viewpoint expressing active-duty priority concerning the issue of berets doesn't bother me. What does, however, are those respondents who have turned this obvious logistics issue into a "respect" issue. We all are aware of the vital role reservists and guard members play in our nation's defense, but at the moment, there aren't enough berets to go around.

Stop whining and get back to work! That's how you earn respect, sergeants!

SSG Koley O. Scott
Via e-mail

Gitmo Accommodations

IS it me, or did the pictures in the July issue show that the "detainees" at Guantanamo, Cuba, (the ones our European "allies" are so worried about) live better than the soldiers who guard them?

SFC Shawn W. McElravy
Via e-mail

Medical Aid in Bosnia

FIRST, I want to thank you for such an excellent article on Bosnia in your August issue.

As a member of Task Force Eagle, I read it with pride. Our soldiers are making a huge difference in support of the Dayton Peace Accords. As the Medical Task Force command sergeant major, I found your articles and illustrations about TF Medical Eagle both accurate and informative.

Soldiers from both the active and reserve components and from several installations and states have formed a compassionate and visible team dedicated to providing healthcare to the soldiers of the 25th Infantry Division. Although our rotation will end and we will return to our families, the Bosnia experience will stay with us forever.

CSM Hiram Ortiz
Via e-mail

Soldiers is for soldiers and DA civilians. We invite readers' views. Stay under 150 words — a post card will do — and include your name, rank and address. We'll withhold your name if you desire and may condense your views because of space. We can't publish or answer every one, but we'll use representative views. Write to: **Feedback, Soldiers, 9325 Gunston Road, Ste. S108, Fort Belvoir, VA 22060-5581,** or e-mail: **soldiers@belvoir.army.mil.**

The NBC Detectives

Story and Photos by Al Vogel

DUGWAY Proving Ground, about 80 miles southwest of Salt Lake City, Utah, is the home of the U.S. Army Developmental Test Command's West Desert Test Center, a major test site for the U.S. Army Test and Evaluation Command.

Its remoteness and carefully controlled laboratory and test facilities enable the Army to safely test nuclear, biological and chemical defense systems and conduct related training for the U.S. military, other government agencies and America's allies.

More than 70 soldiers and scientists from 14 European countries recently met at the desert site for a NATO exercise meant to demonstrate how the respective countries collect samples of biological agents in the field, and to share their techniques.

Because the outdoor use of chemical and biological agents has been banned by international treaty for decades, simulants — benign substances or safe microbes with characteristics similar to various agents — were used in the training.

Six NATO countries — including the United States, Great Britain, Germany, Italy, the Netherlands and Norway — sent teams to the four-day Sampling, Identification of Biological Agents exercise. Austria, Denmark, Finland, France, Poland, Spain, Sweden and Switzerland provided umpires and observers.

Other representatives from countries in the Partnership for Peace program, created by NATO in 1994 to promote bilateral cooperation between NATO and individual European countries, also participated.

Most of the teams shipped their equipment to Dugway and then flew in by commercial aircraft, but Britain's Royal Air Force team flew into Salt Lake City International Airport on two RAF Hercules cargo aircraft, complete with vehicles, including a six-wheeled all-terrain vehicle.

Two sites, 13 miles apart, were "contaminated" with simulants before the arrival of the sampling teams. To make the exercise as realistic as possible, teams responded from a staging area in the remote desert.

In a fictitious scenario, the country of "Redland" (in Idaho) invaded "Goldland" (in Utah) from the north, occupying about two-thirds of Goldland's territory and producing biological agents near Goldland's airfield.

After Redland forces withdrew from the Dugway sector, the NATO joint-forces commander ordered the sampling and identification of biological agents.

Dr. Bruce Harper, chief of the West Desert Test Center's biotechnology branch, said each team was given the Global Positioning System coordinates of the two sites suspected of being "contaminated." Both sites consisted of a mock village of plywood buildings and old vehicles.

After determining locations by map coordinates, each team drove to respective sites. This was no small task; at 1,315 square miles, Dugway is larger than the European countries of Luxembourg and Liechtenstein combined.

Wearing his country's distinctively patterned protective suit, an Italian soldier takes a sample for later analysis in a field lab.

Al Vogel is a writer and photographer for Dugway Proving Ground's West Desert Test Center.

"They showed expertise in navigation in totally unfamiliar territory," said the test center's Danny Szarek, who directed the SIBA test. "I was impressed with how easily they found the sites."

Teams then took water samples from ponds that had been constructed for the exercise. Three of the six sampling teams spent a day at one site before moving on to the next.

Participants from outside the United States were especially impressed with the land area of the proving ground and their subsequent freedom of movement. One team member said his team couldn't move more than a half mile from their staging area to the mock contamination site at their home post because it's so small. At DPG, they drove more than 12 miles from the staging area to either "contamination" site.

Lt. Col. Jack Kohl of the German army's NBC Defense School at Sonthofen said that in Germany there is so much public opinion against bioweapons that the public strongly opposes even mock training by the military.

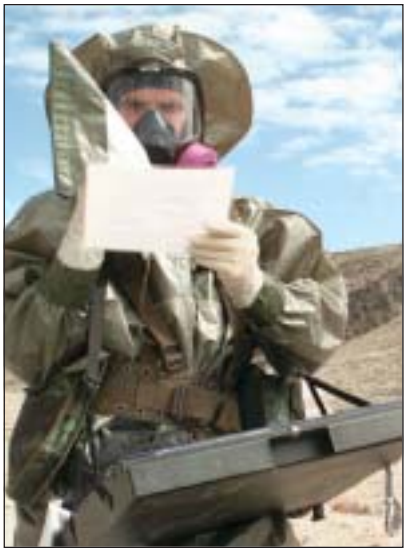
During SIBA, each of the teams established a field camp some distance from the site of suspected biological contamination and set up communication and decontamination lines.

Donning full protective clothing and gas masks, the sampling teams walked to the site, where they used swabs, bottles and plastic bags to collect samples. After each sample was taken, the sample containers and the sampler's gloved hands were given a quick decontamination with a biocide.

Teams returned to the field post, where their compatriots in full protective clothing and equipment decontaminated them and gave the sample containers a second decontamination.

The samples were then forwarded to the distant staging area, where technicians from the Army's Medical Research and Development command at Fort Detrick, Md., tested the samples in a field lab for the presence of the simulants. In an after-action review, teams learned about the findings.

RAF Wing Commander Chris Gorman said the greatest benefit of the SIBA exercise was the opportunity it afforded him to work with military personnel from other nations.



(Above) **A U.S. soldier takes a water sample from a "pond" constructed of sheet plastic.**

(Right) **German troops used a box suspended from the wearer's uniform to hold sampling supplies. This provided easy access to swabs, water bottles and other items.**

More than 70 soldiers and scientists from 14 European countries recently met in Utah for a NATO exercise meant to demonstrate how the various countries collect samples of biological agents in the field.

Members of the Royal Air Force don protective clothing during the Dugway field trials. There is scarce room in Europe for the sort of large-scale exercise conducted in Utah.

German soldiers communicate with their field station using radios sealed inside plastic bags. The plastic helps prevent damage to the radios during decontamination.

Dutch soldiers seal their masks to their protective suits with tape, a step that requires teamwork. The Netherlands was one of 14 countries involved in the Dugway exercise.

Capt. Romeo Tomassetti of the Italian army's 7th NBC Defense Regiment was equally impressed.

"It's been a great experience for us," he said. "This has been the first time that an Italian SIBA team has trained in such a realistic way. It's also been a great experience, because we learned from other teams."

The Italian regiment has provided NBC support to Italian troops stationed in Kosovo, Bosnia, Afghanistan, Macedonia and Albania, but this was its first trip to the United States.

"And we will improve our procedures because of what we learned here," said Capt. Giuseppe Damato, also of the Italian team.

Poland's Col. Marek Malecki works for the Polish Minister of Defense and with NATO, which Poland joined three years ago. He is chairman of Sampling and Identification of Biological, Chemical and Radiological Agents for NATO.

"The main goal of this exercise was to validate, under field conditions, procedures of our NATO-approved SIBCRA handbook," Malecki said. "This exercise validated the knowledge and experience of team members and their equipment, and specific team procedures."

Dr. John-Erik Stig Hansen of Denmark, one of the umpires, is head of the National Center for Bio Defense in Copenhagen.

"That you have provided a forum where we can learn about this really shows responsibility on the part of the United States," said Hansen. "Although there are many solutions, the problems are the same. Because people are exchanging ideas, we'll eventually adopt a best solution."

Dr. Jens Joergen E. Christensen of the State Serum Institute in Copenhagen said a major benefit of the SIBA exercise is the creation of ties between the sampling teams.

"From a microbiologist's point of view, it's very important to create networks," Christensen said. "In a critical situation, you can only rely on people you know personally, and that's what we have achieved here."

Army LTC Mike Urban, chief of the NBC Cell at Supreme Headquarters, Allied Powers, Europe, in Brussels, Belgium, said: "That's particularly relevant, as NATO has invoked Article 5, meaning an attack against one is an attack against all." □

eCybermission

Accept the Challenge

Story by LTC Mark H. Wiggins

THE Army is sponsoring eCybermission — a Web-based math, science and technology competition for 7th- and 8th-grade students — and is looking for volunteers to help make the new program a success.

The competition is designed to attract students who don't typically enter national competitions by encouraging them to tackle problems that interest them or that they see in their communities. Students form their own teams of three or four to conduct research and experiments on their problems, and then submit their "mission folders" online.

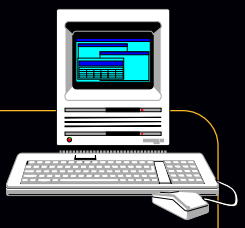
To promote participation, the Army is looking for what it calls "Ambassadors" and "CyberGuides." Ambassadors make promotional visits to local schools and youth groups to encourage participation in eCybermission. CyberGuides provide online advice to students as they complete their projects.

Army Chief of Staff GEN Eric K. Shinseki says he envisioned this initiative as one way for the Army to give back to America's communities. "It's about getting students of all capability levels interested in science, math and technology," Shinseki said. "The future success of our country depends on having a civilian and military workforce that is skilled in these disciplines. Through the creative use of the Internet, eCybermission can become one of the premier science competitions for the nation."

In future years the competition will be expanded to include high school-age students. □

LTC Mark H. Wiggins is the Army chief of staff's special assistant for strategic communications.

For More Information



To learn more about eCybermission, visit **www.ecybermission.com**.

or e-mail ***missioncontrol@ecybermission.com***.

To become a program Ambassador, send an e-mail to **ambassadorprogram@bah.com**;

and to become a CyberGuide, send your e-mail to ***cyberguideprogram@bah.com***.

To promote widespread participation in eCybermission, the Army is looking for what it calls "Ambassadors" and "CyberGuides."

Damage Liability
Notification
Recovery

Making a Better Move

ONE OF the rituals of Army life is the infamous Permanent Change of Station, in which soldiers receive orders to move to new assignments, and their families begin sorting through accumulated possessions and preparing household goods for shipment to their new "homes."

Unfortunately, these moves also expose families to the possibility of property loss or damage. But while you can't insure against the emotional loss of a broken heirloom or missing photo album, there are steps you can take to reduce your financial losses.

Although the armed services provide coverage for losses incident to transfers, this protection may not fully cover all the losses sustained. If a service member fails to do his or her part in the moving process, claims could be partially or completely denied.

Government Liability and Soldiers' Responsibilities

If a soldier doesn't properly complete shipping documents, fails to note damages at the time of delivery or doesn't file a claim within set time limits, this usually permits the carrier to deny liability to the government. In turn, if the government can't collect from the carrier because of these failures, the government may reduce the amount paid against the soldier's claim.

Members shipping property must oversee every step in the documentation and filing process to do their part in ensuring against loss. All steps, from the initial packing inventories to the delivery and notation of damages upon receipt, must be complete and accurate.

Typical Disasters

Most of the "horror stories" associated with property shipments recur year after year.

One example is the soldier who packs valuable items such as cameras, jewelry or coin collections, then labels the box or allows the shipper to inventory the box as "clothing." The obvious problem is that the claims office cannot prove that the carrier ever accepted such items, so the carrier is not responsible for the loss if the items are misplaced, damaged or stolen.

Failure to properly prepare property for movement is another common problem. This often occurs when families pack stereos and computer systems themselves, without referring to their owners' manuals, or fail to supervise the packers as they prepare the shipments. Then, when damage occurs because videotapes or toner cartridges were left in equipment or moving parts were left unprotected, the contractor may deny responsibility for the loss.

Steven Chucala is chief of client services in the Office of the Staff Judge Advocate at Fort Belvoir, Va.

Steps to Follow

Soldiers are required to take the following steps when they discover loss or damage to household shipments:

1 Notify the carrier of any damages or missing items within 70 days of the date of delivery. The notification is completed by turning in the Form 1840/1840R to a military claims office. The 1840 is the pink form provided to the member by the driver at the time of delivery. Damages or losses identified at the time of delivery are noted on the 1840-side of the form, and damages found after delivery are noted on the 1840R side.

2 After filing the 1840/1840R, soldiers must file the loss or damage claim within two years of the delivery date. Any person holding a proper power of attorney may file this claim if the soldier is unavailable because of deployment or other circumstance.

3 Do not dispose of any damaged items until advised to do so by the claims office. This is because the carrier may ask to inspect the item before a claim is paid, and the government or carrier has the right to take possession of the item, for it's salvage value, after payment is made.

Other Considerations

Damages to a building or grounds caused by a carrier during the shipping process are not covered by federal statute or claims regulations. Typical damages include dented walls or doors, scratched floors, broken windows, or damage to lawns or landscaping.

However, soldiers can seek recovery directly from the carrier. Soldiers who are unsatisfied with the actions of the contractor during the packing or shipping process should also file a complaint with the transportation office handling the shipment. Claims offices do not have authority to seek damages based on these complaints, but they can use the information to determine whether to continue doing business with that contractor. □

Some Frequently Asked Questions

Q. Will I get paid for auto rentals or motel costs if my delivery is not made on the date promised?

A. No.

Q. Will I get paid for my labor if I repair the damaged items myself?

A. No.

Q. Should I purchase private insurance for my household goods and high-value property?

A. Generally, yes, since the government does not cover all losses, whether it be in government quarters or during shipment. The basic issue is whether a soldier can bear the financial loss if not insured.

Q. Must I file a claim against my private insurance company before the government will adjudicate or pay my claim?

A. Yes.

Q. Will I be reimbursed for the premium I paid for my private insurance coverage?

A. No.

Q. If I sustain a major loss or all of my property is destroyed or lost, can I receive an emergency payment?

A. Yes. Up to $2,000 may be paid immediately.

Q. How can I best prove the existence of my property?

A. By maintaining an inventory, making a videotape record and ensuring that each item is listed in the shipping document.

In Summary

Although soldiers may wait up to two years from the date of delivery to file a claim (70 days to file the 1840/1840R notice of damages), filing as soon as possible will result in faster service and will more quickly restore the soldier's normal quality of life.

Wildfires ravaged the West considerably earlier than usual

FIGHTING the WILDFIRE WARS

Story by
MSG Bob Haskell

HOMELAND security has meant new and different things to many National Guard soldiers since terrorists targeted America last September. It's not, however, a new concept to Guard soldiers like SPC Charles Ginter of South Dakota, who associates homeland defense with protecting people from the terrors of Western wildfires.

"As far as the home front is concerned, we're in the thick of it right now," Ginter said recently, while training near Rapid City, S.D., to take his place on the front line should a wildfire threaten his drought-parched home state. "If we're not doing our federal mission, it makes perfectly good sense to do this here at home."

Ginter was one of seven members of the South Dakota Army Guard's 216th Engineer Detachment firefighting team to earn their red cards and be sanctioned by the state's Department of Agriculture Wildlife Fire Suppression unit as trained frontline wildfire fighters in mid-June.

It was timely training because wildfires were already ravaging the West considerably earlier than usual, fueled by some of the driest conditions ever recorded, thanks to a two-year drought that officials have blamed on La Niña. The Washington Post reported that more than 18 large fires in six states had charred 2 million acres, "consuming acreage at a pace roughly double the 10-year average."

A battalion-size group of Army National Guard troops was called to state active duty in Colorado and Arizona to help deal with the largest fires in those states' histories — fires allegedly ignited by people employed to fend them off.

And four Air National Guard C-130 transports from North Carolina were flown to Colorado to fight the fires from the air, along with two similar aircraft belonging to the Air Force Reserve.

All six planes were sent to South Dakota to dump fire-retardant chemicals on a blaze that threatened the tourist town of Deadwood, said Air

MSG Bob Haskell is assigned to the National Guard Bureau's Public Affairs Office in Arlington, Va.

National Interagency Fire Center *(main)*, MSG Bob Haskell *(inset)*

South Dakota Army Guard soldiers *(inset)* were among those on the firelines as wildfires ravaged the West *(main picture)* during the record-setting 2002 fire season.

this year, fueled by some of the driest conditions ever recorded,

"As far as the home front is concerned, we're in the thick of it right now."

Heike Hasenauer

National Guard helicopters were instrumental in tracking and combatting several of the season's fires, providing both transportation for firefighters and direct attack using sling-loaded water buckets.

Heike Hasenauer

Using "bambi" buckets filled with water scooped from nearby lakes, Guard UH-60 Black Hawk and CH-47 Chinook helicopters were able to precisely target hot spots.

FIGHTING WILDFIRES

Force Reserve Tech. Sgt. Dave Morton.

National Guard members have already spent the past year pulling security duty at more than 400 civilian airports, staffing checkpoints on the borders with Canada and Mexico, and deploying to Guantanamo Bay Naval Station in Cuba to help guard detainees accused of belonging to Taliban and al-Qaida terrorist cells.

By June, the early wildfire season was the new twist in homeland defense for the National Guard.

Specifically, nearly 300 Army Guard troops in Arizona had pulled security duty with police officers at evacuated communities and were staffing armories for people seeking refuge from a 463,000-acre fire that had destroyed at least 423 houses and forced 30,000 people to be evacuated from nine towns.

The Guard mission wound down in June, because the fire that had threatened Show Low was 35 percent contained and 25,000 residents were returning to their homes, said Arizona Army Guard MAJ Harold Jones.

However, another 550 Guard troops were standing by, just in case they were needed, Jones said. Approximately 185 Army Guard troops were on duty in Colorado's Pike National Forest where the Hayman fire, allegedly set by a U.S. Forest Service worker, had scorched 137,000 acres, destroyed at least 133 houses and, according to an Associated Press report, had cost more than $29 million to fight.

Colorado Guard soldiers transported firefighters and equipment and provided security personnel for fires at Black Mountain, the Coal Seam, Missionary Ridge and the Pike National Forest, said Colorado Guard spokeswoman 1LT Holly Peterson.

And the North Carolina Air Guard's 145th Air Wing, in Charlotte, sent four C-130s — which can each drop 3,000 gallons of chemical retardant in about five seconds — to Peterson Air Force Base in central Colorado to support that effort.

The North Carolina Guard unit joined forces with the crews of the two Air Force Reserve planes from the 302nd Air Wing, based at Peterson. In all, about 100 Air Guard and Reserve personnel were on duty there.

The six planes, each equipped with the Modular Airborne Fire Fighting System, were flying between 12 and 20 sorties per day, said Morton, a 302nd spokesman.

All six planes were needed at the end of June to fight the Grizzly Gulch fire in South Dakota, he said.

That's where Guard troops — like Ginter and 1LT Stuart Muzzy, the commander of the 216th Engr. Det. firefighting team — were primed to reinforce the state's civilian force, which was stretched to the limit. Many of those firefighters had been dispatched to Colorado, said LaVerne Hermanson, the South Dakota Wildlife Fire Suppression unit's chief trainer and safety officer.

> In addition to fighting fires, National Guard members during the past year pulled security duty at more than 400 civilian airports, staffed checkpoints on the borders with Canada and Mexico, and deployed to Guantanamo Bay Naval Station in Cuba to help guard detainees accused of belonging to Taliban and al-Qaida terrorist cells.

In mid-June, more than 18 large fires in six states had charred 2 million acres, consuming acreage at a pace roughly double the 10-year average.

The Guard soldiers got four full days of training — lectures in a classroom and digging firebreaks and cutting trees in the field — at Camp Rapid before Hermanson issued them red cards. They could then work on the front line of a wildfire for 12 or 14 hours a day and for 15 days at a time.

"The most important thing you do out there is to go home at night," Hermanson told the soldiers.

"Our adjutant general does not want to get caught by surprise," Muzzy said about the importance of the training. "If a lot of our civilian resources are in Colorado, and the Black Hills go up, who do you use? The National Guard."

Ginter is getting to be an old hand at fighting wildfires. The college student helped protect buildings at the Custer Boy Scout Camp from the Jasper fire that scorched 80,000 acres in South Dakota in August 2000.

Now he has been recertified to be flown to a fire line as part of a "drop crew," similar to the smokejumpers that have been among the first responders to forest fires for many years.

There is something special about that duty, he and the others said, especially if it means taking on a fire in your home state.

"I worked on reports at night during the Jasper fire two years ago," said SPC Casey Brown. "This work is a lot more appealing than doing reports."

At Press time the Oregon National Guard was most heavily involved in fire-fighting efforts in the West, with nearly 1,200 Army and Air Guard personnel supporting civilian agencies with UH-60 and CH-47 helicopters and crews. They also pulled security and provided logistical support to civilian agencies and an active-duty battalion from Fort Riley, Kan. □

MSG Bob Haskell

Colorado Guard MPs confer with a local police officer while helping control access to areas near the "Coal Seam" fire.

ARMY MATERIEL

Paving the Way to the Army's Future

Story by Heike Hasenauer

"If a soldier shoots it, drives it, flies it, wears it or eats it, the U.S. Army Materiel Command provides it."

COMMAND

Officials at the Army's largest command — the one responsible for providing virtually everything soldiers need to survive in battle and contingency operations around the world — have long claimed that "if a soldier shoots it, drives it, flies it, wears it or eats it, the U.S. Army Materiel Command provides it."

The organization encompasses eight major subordinate commands and includes research, development and engineering centers; the Army Research Laboratory; and depots, arsenals and ammunition plants dispersed over some 150 locations in 40 states and 38 countries, said spokeswoman Tansill Johnson.

AMC not only maintains prepositioned stocks ashore and afloat around the world, it is also the Defense Department's executive agent for all conventional ammunition; for nuclear, biological and chemical defense; and for the armed services' petroleum pipelines.

Developing, buying and maintaining everything in the Army's inventory, from a soldier's BDU uniform and boots to tanks, missiles and aircraft, is what AMC is all about.

"We're involved in everything the Army does, every day," said AMC commander GEN Paul J. Kern.

In a recent interview, Kern spoke about the impact of Sept. 11 on AMC, the Army's materiel requirements and the command's major technology and development thrusts for a transforming Army.

AMC's Immediate Reaction

Just as the events of Sept. 11 "galvanized the nation into action against terrorist threats, they did the same thing to the Army Materiel Command," Kern said.

AMC immediately responded to the attacks by "preparing for the readiness of the rest of the Army," he added. "That required all of our subordinate commands to increase their output — everything from small-arms ammunition to detection gear for biological-chemical agents and the kinds of things that might be consumed in an atypical kind of deployment."

The U.S. Army Tank-automotive and Armaments Command focused on automotive and armor components, Kern said. "Our Aviation and Missile Command focused on support to the aviation community and our air defense system. And our Communications-Electronics Command worked on communications gear."

When the Pentagon had to be rebuilt, CECOM supported the program executive officers to rebuild the vital communications infrastructure that had been destroyed, he said. CECOM also sent equipment to the World Trade Center to help search-and-rescue teams find survivors by locating their cellular phone signals. And the agency also provided radar-scanning equipment, which gave precise locations of buildings that were still moving as a result of the explosions.

Supporting the War in Afghanistan

"As we took offensive action in Afghanistan, we sent logistics support elements overseas, which included both military and Department of the Army civilians and contractors," Kern said. They were spread throughout many countries in Central Asia, providing technical support and day-to-day living support for the soldiers

SGT Michelle Labriel

The AH-64 Apache attack helicopter *(above)* and the vehicles represented in a convoy in Kosovo *(right)* are among the many types of equipment AMC provides.

AMC's Lake City Army Ammunition Plant makes small-arms ammunition for use by all of the nation's armed services.

who were deploying there. "And we were vitally involved in delivering Force Provider-type quarters to Afghanistan."

AMC also prepared pipelines and shipped them to Afghanistan, "so we'd be prepared if we had to move fuel around to different locations," Kern said. "Additionally, we reworked our prepositioned equipment to improve readiness. All the prepositioned sets of equipment, either in warehouses or afloat, are under our Operations Support Command at Rock Island, Ill."

As U.S. forces started consuming ammunition, AMC ramped up shipments from its ammunition-production plants. To date, AMC's Operations Support Command has shipped more than 18,700 tons of ammunition in support of Operation Enduring Freedom, Kern added. At the same time, McAlester Army Ammunition Plant, Okla., received additional orders from

To date, AMC's Operations Support Command has shipped more than 18,700 tons of ammunition in support of Operation Enduring Freedom.

Rebuilding and upgrading the Army's legacy systems — such as these M1 Abrams tanks being modernized at Anniston Army Depot, Ala. — ensures the Army's readiness as it transitions to the objective force.

AMC's Rock Island Arsenal in Illinois has a state-of-the-art foundry that can cast the complex metal parts used in many Army systems.

the Air Force and Navy for high-explosive bombs, representing a 50-percent increase in production.

Chemical-Biological Response

When anthrax was detected in federal office buildings in the nation's capital and at postal facilities, AMC representatives were very much involved in the detection and cleanup work, Kern said.

"I can't think of a single part of the Army Materiel Command that wasn't directly involved or impacted by 9-11," he said. "I could add to our involvement all the force-protection issues we had to handle within AMC, particularly in our chemical storage sites, which are very sensitive areas."

Research on Target

"Our research efforts, which in September 2001 were very much central to the transformation of the Army, received much more scrutiny as a result of Sept. 11 and were determined to be right on the mark with what we should be doing," Kern said.

University research, conducted in partnership with AMC, was focused on many areas, such as nanotechnologies, Kern said. The Army Research Office at Research Triangle Park, N.C., selected the Massachusetts Institute of Technology as a nano-researcher, with research directed specifically toward soldier-survivability related products.

Ongoing research also "fit into the chemical-biological protection of our individual soldiers," Kern said. Additionally, AMCOM, at Redstone Arsenal, Ala., had been working on the technologies that allow Hellfire missiles to be launched from Predator unmanned aerial vehicles, a tactic used in the war against terrorism in Afghanistan.

"Everyone agreed the work we were doing was focused on the right areas," Kern said. After Sept. 11, AMC's technology research and development efforts became more visibly important, especially those that will contribute toward products in the following areas:

Chemical-biological detection devices.

"We've been doing a lot of research in that area to downsize and improve early detection equipment," Kern said. Much of the early detection equipment parked around the Pentagon today was built in Edgewood, Md., by the Soldier Biological Chemical Command to support early detection of chemical-

SGT Tom Bradbury

The Stryker infantry carrier — such as this one rolling off a C-130 during an exercise at the National Training Center — is another AMC success story.

biological hazards.

More reliable, deployable and agile ground capabilities. "We need them, whether in a smaller tracked or wheeled vehicle than the Army's current 70-ton platforms, or a pervasive communications network," Kern said. The latter, known as C4ISR, will give soldiers a situational understanding of the battlefield and allow them to operate in diverse places.

These experimental unmanned vehicles have undergone demonstration trials managed by the ARL as part of DOD's Joint Robotics Program.

Working to Reduce "Fratricide"

"The research work we do in providing better situational awareness for our soldiers is part of the process to reduce 'fratricide,'" Kern said.

It's a combination of research that provides awareness information and interrogation devices that provide a signal and a response between "friendly" and "unfriendly" forces, Kern said, "much as aircraft transponders have done for years."

Meantime, to help prevent "fratricide," the Army uses improved optics and night-vision devices that are high fidelity, allowing soldiers to more easily recognize what they're looking at under all conditions, he said.

Developing Technologies

"I'm very excited about the kinds of things I see coming," Kern added. "We really have skipped a generation of equipment fielding. So our soldiers today are fighting with equipment that is good, but relatively old. And the changes that will take place are going to be very significant as we move forward."

About the recent cancellation of the Army's Crusader heavy artillery program, Kern said: "The argument people are making now is that tube artillery is something of the past. Many in the Army don't believe that. But a lot of the capability that we have in artillery today will be moving to the shorter-range mortars, and more missiles.

"I think we'll see those in larger quantities. At the same time, we'll try to find a way to capture the technology of Crusader in something that's more mobile and lighter weight, and which will fit into the future combat-system class of vehicles," he said.

Kern cited some of the following as near-term, major technology changes for the Army:

Computing. "It will be pervasive on the battlefield, in ways that we don't even conceive of today," Kern said. "There will not just be a desktop or laptop computer, but almost every device will have a processor attached to it to help the user understand the environment. Consequently, equipment will work more efficiently."

Soldier protection. "We're going to be improving the protection of our soldiers, not by adding hundreds of millimeters of rolled homogeneous armor," Kern

In this artist's depiction, unmanned vehicles, similar to those under development, support soldiers engaged in clearing an urban area.

Among the Army Research Laboratory's areas of expertise is lighter-weight personnel protective armor intended to defeat emerging ballistic threats.

said, "but by looking at new molecular structures that are much stronger and much lighter. Those include ceramics and composites, and replicating the spider silk capability."

The latter would give the Defense Department a material much stronger than steel and very lightweight, which could be spun into fiber or woven into armor plate, Kern said.

Improved power generation.
"We'll be looking at power generation from a lot of different aspects," he said, "because electrical-power consumption is one of the greatest areas of growth on the battlefield.

"When I joined the Army we had a flashlight and a radio. Today, soldiers have lasers, night-vision equipment, multiple communications devices and computing devices, all of which consume electrical power," Kern said.

"We're looking at fuel cells, microturbines, high-efficiency batteries and lithium-ion batteries," he continued. "We're looking at electronic suspensions on our vehicles that could give us tremendous increases in cross-country speed on large vehicles. We're looking at hybrid-electric vehicles and transitioning combinations of these different power sources to much more fuel-efficient ways of generating both automotive power and electrical power on the battlefield."

Robotics.
"Robots will have great import on the future battlefield," Kern said. "The science today is maturing from small-scale robots that can go through urban terrain, buildings and tunnels, to large-scale robots that can carry sensors and weapons." Initially, they might follow other vehicles around, but ultimately they could lead systems autonomously, he said.

Objective Force Warrior is a science-and-technology initiative intended to make future soldiers more effective while ensuring their survival on increasingly lethal battlefields.
Sarah Underhill

Electro-thermal-chemical weapons.
Future weapons may also benefit from electrical power, Kern said. "We'll see these type of weapons mature to give the same lethality to a 105-caliber munition as a 120mm.

Penetrators and specialized warheads and missiles.
"We're looking at various novel penetrators and warheads — and missiles that may be carried for vertical launch and act more like artillery pieces. We're also looking at a commonality of missiles, so that components can be put together to provide both aviation platforms and ground platforms, thereby reducing production, maintenance and spare-parts costs," Kern said.

Unmanned systems.
What Kerns calls "a whole new research area," would provide both ground and air platforms to complement those we're fielding today with the tactical unmanned aerial vehicle and Hunter UAV. They'll include very small individual systems to very large ones, he said.

Sensor-to-shooter capability.
"The Comanche helicopter, which has been in development, will bring a new sensor-to-shooter capability when it

"There's almost no end to the list of developing ideas and technologies, and the ability to make soldiers more lethal and survivable fighters," Kern said.

goes into production," Kern said. It would bring ground- and vertically launched missiles together with sensors, night-vision precision and

The RAH-66 Comanche — the Army's next-generation reconnaissance/attack helicopter — is now undergoing extensive testing and is scheduled to be fielded in 2009.

radar from ground and air platforms, to locate and fight with fires from other services as well as with fires from other Army platforms. The high-tech equipment could be incorporated into a Navy platform at sea or an Air Force platform high above the Earth.

Mobile networking.
"The Army's ability to provide mobile networking capability will be sought after by everyone once they realize the breakthroughs we've made in mobile networks," Kern said. "Everybody's used to cellular phones that require communications towers. We've built systems that are independent of those towers."

Nanotechnology.
The technology means "doing things at the atomic level," Kern said.

It could be applied to micro-machinery in which a mechanical machine's components, gears and levers, for example, are manufactured on the atomic scale, via printed circuits rather than by big machines.

"That's one level of nano-technology," Kern said. "The other is the microbiological level, where we can actually 'grow' machinery.

"You get into a whole other set of nanotechnologies with nanotubes, which are very tiny tubular devices, which you can grow," Kern said. Nanotubes are built around atomic, molecular structures, as opposed to big, bulky things that you can see.

"They have the same strength and elasticity as many of our steel and composite structures today," Kern said. "But when you produce devices using nanotubes you can reduce hundreds of pounds to 20 or 30. Bullet-proofing and environmental conditioning can be woven, literally, into the fabric of the clothes you're wearing."

The technology could also allow commanders to monitor their soldier's physiology, so they'll know when someone's falling asleep or whether an injury is lethal or minor.

Handling and packaging equipment.
AMC is looking at ways to reduce the logistical footprint by reducing the number of people needed to move things from ship to air or air to ground, Kern said.

"There's almost no end to the list of developing ideas and technologies, and the ability to make soldiers more lethal and survivable fighters," Kern said. The Army's future, largely with AMC's support, promises to see the evolution of Land Warrior and Objective Force Warrior, vehicles that may be autonomous robots, and 10- or 20-ton wheeled or tracked vehicles that have the same protection as a 70-ton M1A1 Abrams tank.

"The individual soldier will probably see the most remarkable changes," said Kern, "as we provide higher protection, more capable individual equipment — from rifles to night-vision gear, to survivability helmets and protective vests, which are capable of stopping bullets, not just shrapnel. At the same time, environmental protection will allow us to operate in high-threat chemical and biological environments, regardless of heat, cold or dust conditions."

Army Transformation

Army Transformation is on target, Kern said. The events of Sept. 11 heightened everybody's sense of urgency, so the work has been progressing well, despite the interruptions of the terrorist activities.

"The lead system integrator for Army Future Combat Systems, working with our laboratories and the Defense Advanced Research Projects Agency, has amassed a tremendous number of technical options, which will be reviewed this fall by the Army and presented to the secretary of defense for a decision next spring," Kern said.

He said choosing which technologies to develop and field will be the biggest challenge, because there are so many ways to package capabilities for the greatest effect.

"We've been blessed over the years with very high quality, dedicated civilians in the Army Materiel Command who have provided the tools that contributed toward ending the Cold War and putting down Saddam Hussein," Kern said. "We have the same opportunities now to use ever-advancing technology against the Taliban and al Qaeda in the war on terrorism." □

The AMC Team

THE U.S. Army Materiel Command's list of technological pursuits and developments is far too extensive to adequately cover here, so Soldiers selected portions of technology research areas submitted to us by several of AMC's major subordinate commands and research-and-development centers to provide snapshots of some of their current activities.

Natick Soldier Center

Objective Force Warrior

CHAMELEON-like BDUs; medical body sensors; see-through, heads-up displays; and lightweight weapons with advanced fire control. They're all on the NSC's list of things to do in cooperation with other Army agencies.

The Objective Force Warrior Advanced Technology Demonstration, scheduled for fielding as Land Warrior Block III in 2010, is a lightweight, fully integrated combat system for individual soldiers. It will incorporate numerous equipment improvements, from protective gear and small arms to networked communications and intelligence-gathering equipment.

OFW will build on current capabilities and new technologies to upgrade the Land Warrior version 1.0, slated for fielding in 2004.

OFW will include a single combat uniform system that protects soldiers from chemical and biological agents, ballistic threats and wet weather. It will cool soldiers in the summer and warm them in the winter, with a microclimate cooling system built into the fabric. And enhanced camouflage, which changes with the environment, will reduce a soldier's chances of being spotted by the enemy.

Additionally, OFW could include body sensors that would not only keep track of the individual's physical status, such as heart rate and body temperature, but permit medics to provide preventive care and perform "remote" triage on the battlefield.

Soldiers will also wear a helmet with a see-through, heads-up display that could show video and thermal imaging and integrated sensory enhancements, networked with information from manned and unmanned ground and aerial vehicles for collaborative situational understanding.

For the utmost in individual combat strength, soldiers could use an ultra-lightweight family of weapons with advanced fire control, optimized for urban combat.

The OFW program is focusing on ways to reduce the weight soldiers carry. The initial weight for the new OFW system will be about 50 pounds, about half of what today's soldiers carry.

Alternative power sources, such as lightweight fuel cells that are longer lasting than traditional batteries, could also reduce weight.

And robotic "mules" could help carry equipment, or be used as platforms from which to launch unmanned aerial vehicles that will give soldiers a birds-eye view of the local terrain. The mule could also purify potable water and recharge batteries or other power sources.

Because of its modular design, the OFW concept will continue to undergo major upgrades beyond 2010, as new technologies become available and practical. □

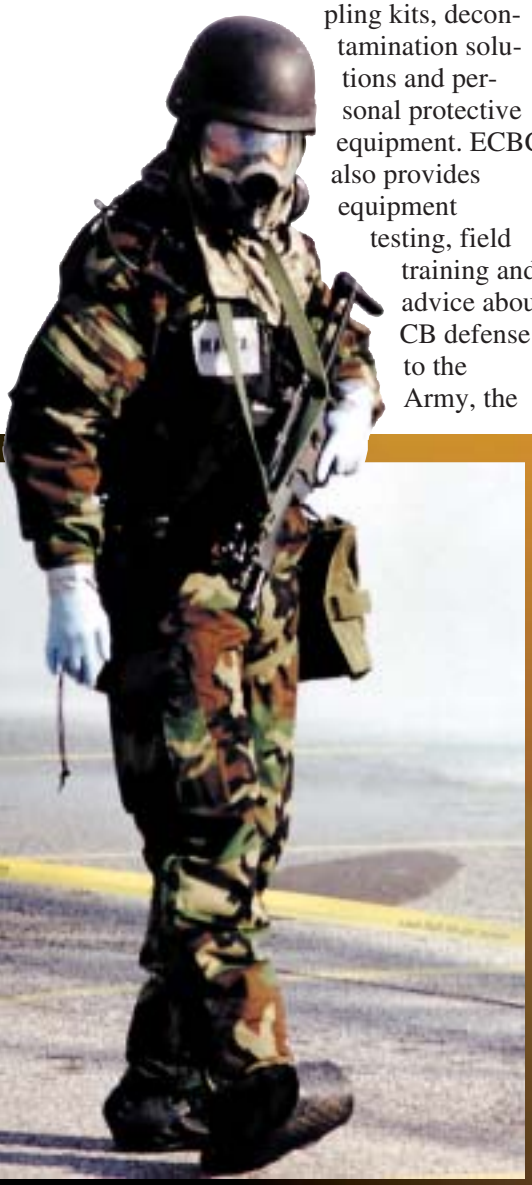
Sarah Underhill

Edgewood Chemical Biological Center

Chemical-Biological Defense

THE words "homeland defense" entered widespread use after Sept. 11, but the Edgewood Chemical Biological Center at Aberdeen Proving Ground, Md., has been readying U.S. service members for incidents involving weapons of mass destruction since 1917.

The center develops chemical and biological agent detectors and sampling kits, decontamination solutions and personal protective equipment. ECBC also provides equipment testing, field training and advice about CB defense to the Army, the private sector, and government agencies.



Long focused on research and development to provide protection against chemical agents, ECBC is working to enhance its ability to provide protection against biological-warfare threats.

In the mid 1990s the Army designed, built and fielded the military's first biological-weapon detection system — the Biological Integrated Detection System — to monitor, sample, detect and identify biological-warfare agents. BIDS consists of a vehicle-mounted shelter equipped with a biological detection "suite." The latter contains technologies to detect large areas that have been contaminated.

The Humvee-mounted Biological Integrated Detection System can confirm a biological attack, identify the agent used and capture a sample for later analysis.

Today, the Joint Biological Point Detection System, ECBC's third generation biological detection system, is used by all U.S. military forces. In the wake of the Sept. 11 attacks, the center is using the system to protect high-priority U.S. defense sites.

Other Army Materiel Command elements are also working on biological-agent detection and protection. The Army Research Laboratory, working with AMC's Soldier and Biological Chemical Command, among others, has developed a highly sensitive hand-held device to detect the "top ten" biological-agent threats to soldiers.

Thanks to nanotechnology, which can put molecules together one by one, the "ticket," as it's called, is easy to use, requires no power and gives far fewer false positives than other devices. Most importantly, it provides almost immediate feedback, even when concentrations are very low. At a 2001 field trial it beat out all other hand-held devices in detecting anthrax and ricin toxin.

The Natick Soldier Center is also researching and testing the next generation of lightweight material for use in CB protective clothing. In particular, the center is working on selectively permeable membrane technology, a lightweight, flexible polymer material that protects against highly toxic compounds, including CB agents, by blocking the agent instead of absorbing it.

The material would also make protective over-garments much lighter,

AMC's ECBC is working to improve chemical-biological protective equipment by testing the effectiveness of masks, respirators and other protective clothing.

and allow moisture vapor from sweat to escape and cool the body.

Through its National Protection Center, the NSC is also looking at leveraging this technology for use by first responders.

The ECBC is also a leader in developing decontamination solutions, particularly those that are environmentally safe and affordable. ECBC has patented the Edgewood Enzymatic Decon System, whereby neutralizing enzymes can be added to water, or any water-based application system in which CB agents may have been released, to quickly neutralize agents, including nerve gas and pesticides.

ECBC also provides vital training in the field to soldiers and civilian organizations on weapons of mass destruction. In 1996 ECBC added protecting the homeland to its mission and, since then, has trained more than 28,000 first responders in 105 communities across the country as part of Congress' Domestic Preparedness Program. □

The selectively permeable membrane used in this protective uniform blocks chemical and biological agents.

ARL is developing such diverse systems as an electromagnetic gun prototype *(above)* and components for microturbines *(below)*.

Army Research Laboratory

ENGINEERS and scientists at ARL, headquartered in Adelphi, Md., provide the research needed to develop technologies that will allow soldiers to dominate land warfare. At the same time, they improve the equipment soldiers use today.

Microturbines

The technology areas in which they're working include microturbine engines to replace batteries. The same technology that's used to make computer chips is used to fabricate microturbines roughly the size of a sugar cube. The Massachusetts Institute of Technology is working with ARL, through the Army Research Office in North Carolina, to develop the power source that could potentially provide five to 10 times more energy than batteries operating the same piece of equipment could supply — with increased life and less weight.

Ballistic Protection, Electromagnetic Gun and Robots

ARL is also developing ballistic-protection technologies for Soldier and Biological Chemical Command systems. The lab's efforts are aimed at producing prototype personnel armor systems that can defeat emerging ballistic threats.

Other areas of ARL research are geared toward development of an electromagnetic gun that could be integrated with electric-vehicle propulsion and armor systems to provide an efficient, highly mobile and deployable ground maneuver force, and unmanned ground vehicles — robots — to perform high-risk missions.

The robots will also expand a unit's capabilities by increasing situational awareness, providing remote fires on demand and reducing the logistics burden by reducing the number of combat vehicles needed on the battlefield. □

AMCOM's refinements of the Multiple Launch Rocket System have extended the range, precision and lethality of the already highly effective weapon.

U.S. Army Aviation and Missile Command

Bunker Buster

TO give soldiers who are deployed with the Stryker brigade combat teams maximum firepower while the mobile gun variant of the interim armored vehicle is being fielded, the U.S. Army Aviation and Missile Command's Research, Development and Engineering Center, or AMRDEC, in Huntsville, Ala., teamed with the Close Combat Missile Systems Program Office to produce the TOW Bunker Buster system.

Based on the proven TOW-2A, it pairs a high-explosive warhead with a fuze delay assembly to ensure that the warhead penetrates the target before detonating.

Guided MLRS

One of the stars of Operation Desert Storm was a relatively low-cost, unguided rocket system. The Multiple-Launch Rocket System can fire 12 rockets, each carrying 644 bomblets. The MLRS was so effective, and elicited such fear from Iraqi soldiers, that they dubbed it "steel rain." Even so, the U.S. feared it could be overmatched by the longer-range Iraqi artillery systems, bringing a Congressional mandate for an extended-range MLRS.

The MLRS Project Office developed a longer-range version, trading payload for increased propellant. But, extending the range of the MLRS also meant that the bomblets dispersed over a greater area, increasing the chances for collateral damage. The only way to increase the precision of the rockets was to incorporate a guidance system. And the big problem was how to add guidance without increasing the cost to the point that the economical MLRS became just as expensive as precision-guided missiles.

An AMRDEC engineer determined that a new inertial-measurement unit, coupled with small stabilizers and a global-positioning system, would allow the GMLRS to fly twice as far as the previous version and hit a target within two meters.

Battlefield Highly Immersive Environment

The ultimate test of a new weapon system is how it performs in the hands of the soldier. Unfortunately, such testing often comes too late to

AMCOM provides simulators, such as this UH-60 system, to both train aviators and to develop cockpit systems and procedures.

influence the system's development. Since early modifications are less costly than those done later, waiting until a system is fielded makes changes prohibitively expensive and forces soldiers to adapt to the system instead of the system adapting to the soldier.

AMRDEC's Advanced Prototyping and Experimentation Laboratory has adopted the Army's Simulation and Modeling for Acquisition, Requirements and Training, or SMART, program.

Through SMART, soldiers — using weapon and aviation simulators in the Battlefield Highly Immersive Environment (that can be linked with other research activities, U.S. Army Training and Doctrine Command battle labs and national training centers) — can experience how the developing system would function in an actual battlefield environment and provide valuable critiques. □

Among the systems ARDEC is working on is the new lightweight 155mm howitzer, seen here being prepared for action during an evaluation exercise.

Armament Research, Development and Engineering Center

ARDEC, at Picatinny Arsenal, N.J., is working on a number of new weapon systems that will support the interim and objective forces. Among those will be the joint lightweight 155mm towed howitzer.

Lightweight Howitzer

Weighing approximately 9,000 pounds, the lightweight 155mm will replace all M-198 howitzers in the Army inventory. In three minutes or less the XM-777 will be ready to fire as many as four rounds per minute up to distances of 30 kilometers.

In other research areas, ARDEC is working toward development of:

- An integrated airburst weapon system. Equipped with two barrels, one that will fire 20mm air-bursting munitions and the other that will use standard 5.56mm small-arms ammunition, the XM-29 will have a range of up to 1,000 meters, greater lethality than the M-16 and M-4, and complete day-night capability.

- A new, long-range sniper rifle, the XM-107. It will replace the 20-year old M-82A3 that is currently used by the U.S. military services. Army snipers equipped with the XM-107 will be able to hit targets more than a mile away.

- A weapon for the future multi-role armament and ammunition system. The lightweight MRAAS would fire direct and indirect munitions out to 50 kilometers. It would include a multi-purpose, extended-range projectile, smart cargo round and a multi-purpose smart warhead.

- A mobile, unmanned 120mm mortar system that will be controlled remotely by objective-force soldiers. Weighing between 4,000 and 6,000 pounds, it could be directed to change its location to confuse the enemy.

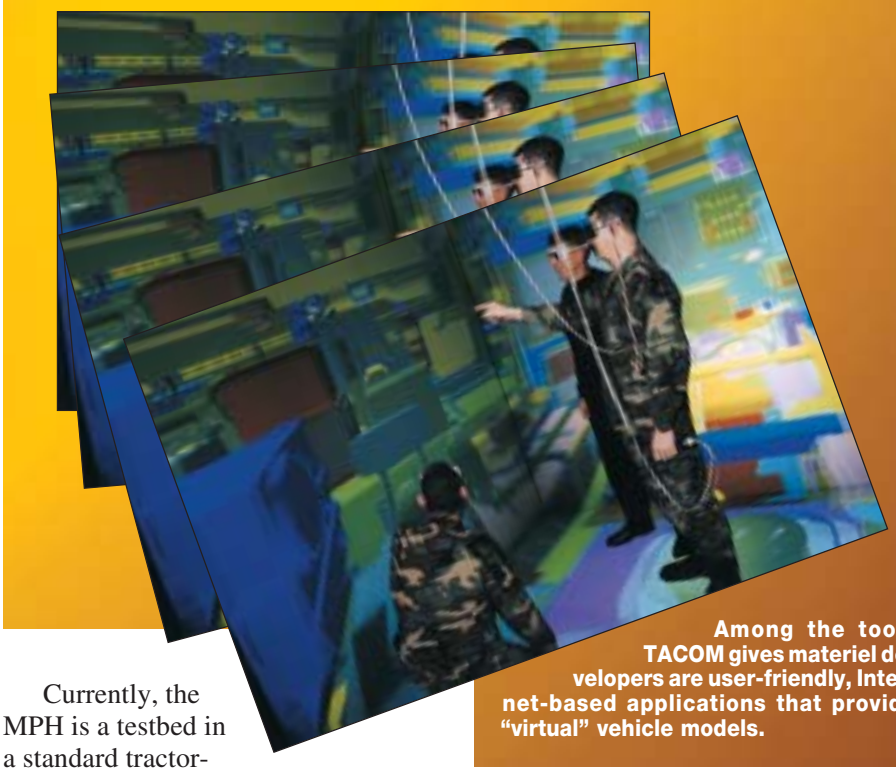
- The Precision Guided Mortar Munition. A 120mm laser-guided mortar with extended range, PGMM will be more survivable than current mortars and is intended to defeat the enemy faster with less collateral damage. □

Tank-automotive and Armaments Command

Advanced Collaboration Environment

WHILE TACOM's Advanced Collaboration Environment isn't quite as "real" yet as Star Trek's "holodeck," it's every bit as interactive, say TACOM engineers and scientists in Warren, Mich. The ACE helped developers of the Stryker interim armored vehicle solve system-design problems early on by allowing soldiers, designers and contractors to work on a "virtual" vehicle in real time.

Together in a 3-D room, they were able to "walk" around the vehicle, move its parts and recommend changes on the spot.



Among the tools TACOM gives materiel developers are user-friendly, Internet-based applications that provide "virtual" vehicle models.

Mobile Parts Hospital

TACOM engineers are also working on the Mobile Parts Hospital, something like the Star Trek replicator the crew uses to make food and other items. The Army version would allow soldiers to make replacement parts immediately, wherever they're deployed.

Currently, the MPH is a testbed in a standard tractor-trailer. It's equipped with a vertical milling machine, modified to also serve as a lathe; a laser sinter machine, which converts powdered rubber, metal, plastics and ceramics into actual parts; and a laser scanner.

It's also connected to satellites, various computer networks, Web-based technologies and cellular phones. So, if a soldier needs to manufacture a hose for a downed Humvee, for example, engineering data for the part is relayed over one of the on-board communications systems to the MPH. The data is fed into the sintering machine, and powdered rubber is transformed into a hose.

Soldiers would also be able to create parts by scanning a broken part, receiving its engineering data, and feeding the information into the system.

As the program evolves, the MPH will be housed in a container for rapid shipment. □

Personnel involved in developing the Stryker can evaluate "virtual" designs at TACOM's Advanced Collaborative Environments laboratory.

U.S. Army Communications-Electronics Command

LOCATED at Fort Monmouth, N.J., CECOM is AMC's lead organization for developing communications and electronics gear. Its Research, Development and Engineering Center is responsible for developing key C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) technologies that will allow soldiers to "see" what's happening before the enemy does, process that information and respond quickly.

RDEC is responsible for 42 of the Army's 186 ongoing Science and Technology Objectives and nine of its 18 Advanced Technology Demonstration programs, which will provide soldiers needed capabilities in intelligence, electronic warfare information operations, sensor technologies and battlefield communications.

The latter includes electronic counter-countermeasures capability and information security systems, and advanced battlefield visualization technologies.

A special-projects office integrates technologies being developed and tested at CECOM's various facilities. The centerpiece of that effort is a C4ISR virtual test bed that can evaluate the capabilities of emerging technologies. Other RDECs, industry, and university laboratories can also connect to the test bed through a CECOM-managed digital network.

Technologies being tested include layered sensors that provide a wide-angle view of the battlefield. Some sensors will combine highly automated command-and-control functions while on the move. Others will assist in precision indirect fires. Sensors will also help soldiers communicate with unmanned ground vehicles. □

CECOM is involved in developing communications technologies for individual soldiers — such as the Objective Force Warrior — as well as for major weapon systems.

Sharp Shooters

Photos by Gary Skidmore

FORT Riley is nestled in the Flint Hills of Kansas approximately 140 miles west of Kansas City. Established in 1853 as a frontier post, the 100,000-acre installation is home to more than 10,000 soldiers and supports nearly 12,000 family members, 18,000 retirees and 4,000 civilian workers. Gary Skidmore, command information officer at the public affairs office and former DA civilian photojournalist of the year, captures the installations' community in action.

(Above) **More than 300 former soldiers participated in Fort Riley's salute to Korean War veterans.**

(Right) **PFCs Mike Soldato and Chris Skidmore cross the finish line during Fort Riley's 12-mile Expert Field Medical Badge road march.**

With his big brother Matt watching, Mike Frasure hangs on tightly during his first rodeo saddle bronc ride.

(Left) **The obstacle course is one of the favorite stops for children during the Fort Riley Open House.**

(Right) **Two soldiers from 1st Battalion, 13th Armor, inspect their gear prior to heading out to a field exercise.**

(Below) **At the end of every change-of-command ceremony at Fort Riley the costumed honor guard charges across the parade field to the historic tune "Garry Owen."**

Standard photo submissions for Soldiers Sharp Shooters can be mailed to Photo Editor, Soldiers, 9325 Gunston Road, Ste. S108, Fort Belvoir, VA 22060-5581. **Photo submissions of digital images should be directed to** alberto.betancourt@belvoir .army.mil. **All submissions must include an introductory paragraph and captions.**

Focus on People

Compiled by Heike Hasenauer

LTG Dennis D. Cavin, commander of Accessions Command, talks with filmmaker Allen Daviau on the Fort Lewis confidence course during filming of the latest "Army of One" ads.

"You look at so many movies and see the behind-the-scenes stuff, wondering what it would be like ..."

SOME 300 soldiers from Fort Lewis, Wash., spent several weeks in July working as extras during filming of the latest "Army of One" ad campaign.

The commercial shoot, in which a few of the soldiers had speaking roles, boasted a $1 million budget and the advertising prowess of Chicago's well-known Leo Burnett advertising agency.

"The soldiers enjoyed the heck out of it," said Bill Russell of the U.S. Army Recruiting Command. "Some came in when they didn't have to, to support the project."

Participating in the filming provided a welcome break from their daily grind, and a chance to see behind the scenes of a film production, Russell said.

Initially, some soldiers had reservations about being chosen to represent the Army, said **SSG Michael Mabanag**, NCO in charge of the intelligence office at Headquarters and HQs. Company, 2nd Battalion, 3rd Infantry Regiment.

"At first I didn't want to be in it, I wanted my soldiers to have the exposure," he said. "The coolest part was actually having the camera on us. You look at so many movies and see the behind-the-scenes stuff, wondering what it would be like to be there and observe. I can't believe that I'm a part of it."

"It's very interesting how they do this stuff," said **SPC Jason Baker**, a supply specialist with HHC. "I didn't realize lighting is so critical to a production."

In the ad, a young civilian male finds himself in various soldier situations, including riding in a Chinook helicopter, loading a howitzer, and completing a confidence course. The final scene shows the transformed civilian standing in a military formation. His hair is closely cropped, and he's donning a Class "A" uniform.

The commercial is what's called "a direct-response" commercial. At the end of it, viewers see a "1-800" number to call for more information.

USAREC's goal is to motivate potential recruits to find out something they didn't know about the Army.

During filming, extra scenes were shot for use in an updated version of the "212 ways to be an Army of One" video, currently being used for recruiting. — *Fort Lewis Public Affairs Office*

SPC Erica Leigh Foley

SPC Victor Martinez, 65th Military Police Company, Fort Bragg, N.C., plays a song for his mother on camera.

BLANCA Martinez checks her mailbox in Glendale, Ariz., daily to retrieve the usual junk mail and possibly a letter from her son, **SPC Victor Martinez**, a mechanic with the Fort Bragg, N.C.-based 65th Military Police Company in Karshi-Khanabad, Uzbekistan, supporting Operation Enduring Freedom.

She receives letters and phone calls from him regularly, but recently he sent something even better.

He sent his smile and a song neatly packaged in a digital video disc provided by the morale, welfare and recreation center at Karshi-Khanabad.

He sent his smile and a song neatly packaged in a digital video disc provided by the morale, welfare and recreation center at Karshi-Khanabad.

"This is a great way to keep morale up for the folks back home," said Arthur Chandler, MWR manager. "This gives the soldiers another way to send messages to their loved ones."

The messages are recorded in a quiet room, where the soldier can share news and sentiments with his family that he doesn't want to share over the phone.

Martinez, for example, knew his mother would be disappointed by the news that his tour in Uzbekistan was being extended for the fifth time.

Telling her via DVD, where she could see his smiling face, softened the blow, he said.

"I figured if she saw my million-dollar smile, she'd see that I'm all right," said Martinez. He strummed his guitar and sang a song about his life since he enlisted in the Army, adding the bit about the extension.

Soldiers can send messages from one to five minutes long, and as many as they please.

The DVD service has been put to good use, Chandler said. Soldiers collectively make about 30 DVDs daily. — *SPC Erica Leigh Foley, 28th PA Detachment*

A video technician records every take of SSG Michael Mabanag's performance during the filming at Fort Lewis.

SFC Gilbert A. Rios of the Henry H. Lind NCO Academy double-checks actor David Burtka's uniform before filming the final scene.

Postmarks

Compiled by SSG Alberto Betancourt

From Army Posts Around the World

The high-speed HSV-X1, an Australian-built wave-piercing catamaran, called at the Army's Ronald Reagan Ballistic Missile Defense Test Site on Kwajalein Atoll when a typhoon interfered with her Pacific crossing.

Kwajalein Atoll

Joint Venture Visits Reagan Test Site

ONE of most innovative vessels in the U.S. military arsenal sped into the world's largest lagoon at 30 knots in early July.

The Australian-built high-speed transport HSV-X1, known as *Joint Venture*, spent the night at the U.S. Army Kwajalein Atoll marina after a seven-day trip from Singapore. The vessel, which is being jointly evaluated by the Army, Navy and other federal agencies, was returning to the United States following missions associated with Operation Enduring Freedom, said the ship's second mate, Army CW2 Tim Schauwecker. The ship was originally scheduled to travel via Guam, but was diverted to Kwajalein — site of the Ronald Reagan Ballistic Missile Defense Test Site — because of Typhoon Chataan.

Schauwecker said the ship's 36 crewmembers have tested the vessel's abilities in the waters around Europe, the Middle East, Asia and the Pacific Ocean since beginning their voyage in March.

Built as a high-speed passenger ferry for use between Tasmania and mainland Australia, the 313-foot wave-piercing catamaran has been fitted with a helicopter pad and other military-specific modifications. A two-part, hydraulically-operated ramp allows rapid loading and unloading of vehicles and troops from the stern or side of the vessel.

Schauwecker said the HSV-X1 is intended to offer higher load capacity than an airplane but at a much faster speed than the Army's current types of large, ocean-going landing craft. — *Peter Rejcek, Kwajalein Hourglass*

Fort Polk, La.

New Englanders Tackle the Bayou

MASSACHUSSETTS National Guard soldiers used skills acquired last year in the Mojave Desert during this year's annual training in the land of alligators and armadillos.

Seventy soldiers from the 1164th Transportation Company spent two weeks here, moving supplies and 4,500 soldiers from the Oklahoma Army National Guard's 45th Infantry Division during the field-training exercise.

1LT Brad Leighton

SPC Robyn Chapman and SPC Lewis Trinidad were among the Massachusetts Guard soldiers at Fort Polk.

"We are a blue-collar company," said 1SG Mark Sullivan. "All we want is work. When we get the work we excel."

Company commander CPT Myles McHugh said the training his soldiers received mirrored what they'd do during a real-world mission.

"Our unit has a diversity of skills, and our soldiers were able to put many of those to the test at Fort Polk," he said.

As a heavy truck company, the unit routinely moves supplies. But at Fort Polk the soldiers used buses, Humvees and 5-ton trucks to move thousands of troops during the exercise, McHugh said.

"We also participated in

some engineering operations, as well as railhead and river-transportation operations," he said. "The unit trained in railhead operations last year at the National Training Center on Fort Irwin, Calif."

COL Ed Tucker of the 45th Inf. Div. said the New England Guard soldiers did a great job.

"This is the climax of three years' worth of training for the division," Tucker said. "The 1164th did a great job supporting them." — *1LT Brad Leighton, Mass. Guard Public Affairs Office*

Tucson, Ariz.

Reservists Move Fuel

THE capabilities of several Army Reserve units to test, store and distribute petroleum products were tested during a recent coast-to-coast exercise involving more than a dozen battalions, and 100 transportation and quartermaster companies and detachments.

SSG Amie Howell

SPC Jorge Morales connects a suction hose to an M-969 tanker and prepares to offload JP-8 fuel at the Tucson Air National Guard Receiving Terminal during operation POLEX.

"Operation POLEX 02 tested our soldiers' ability to store and distribute petroleum products from several defense fuel-supply points," said MAJ Clifford A. Brown, commander of the Tucson-based 418th Quartermaster Battalion. "We also purified water and distributed it to units training on various installations."

Brown said the exercise met the Reservists' two-week annual training requirement while allowing his soldiers to perform daily operations normally accomplished by civilian contractors.

During the exercise, the unit distributed more than 400,000 gallons of aviation fuel to the Arizona Air National Guard in Tucson, at Luke Air Force Base and at Fort Huachuca, Brown said.

"Our objective was to safely transport fuel using available transportation assets; set up and store fuel in a field environment with the petroleum-supply companies 'bag farm' assets; and check fuel quality using the battalion's mobile petroleum laboratory," he said. "Our battalion has one of four certified mobile petroleum laboratories that are operational in the Army Reserve." — *Elizabeth Proenza, 418th QM Bn. PAO*

Saudi Arabia

Allies Train, Jump Together

THE United States and Saudi Arabia recently emphasized their long-standing military alliance by conducting the first joint military operation in the Middle Eastern nation.

To build on the two nations' existing military relationship, COL John S. Westwood, chief of the U.S. Military Training Mission to Saudi Arabia's Joint Advisory Division, came up with the idea of conducting airborne training with the Saudi Arabian Special Security Forces School and Center.

Stuart G. R. Warner

Saudi and U.S. jumpmasters rehearse proper aircraft exit procedures during joint prejump training.

Stuart G. R. Warner

As paratroopers descend, Saudi Maj. Gen. Abdulrahman Al-Marshad presents a commemorative plaque to U.S. Air Force Maj. Gen. Michael N. Farage, chief of USMTM.

"Our job is to train with the Saudis — to lead by example — to encourage fellowship and demonstrate leadership," said Westwood. "An airborne operation would be a great way to forge those attributes."

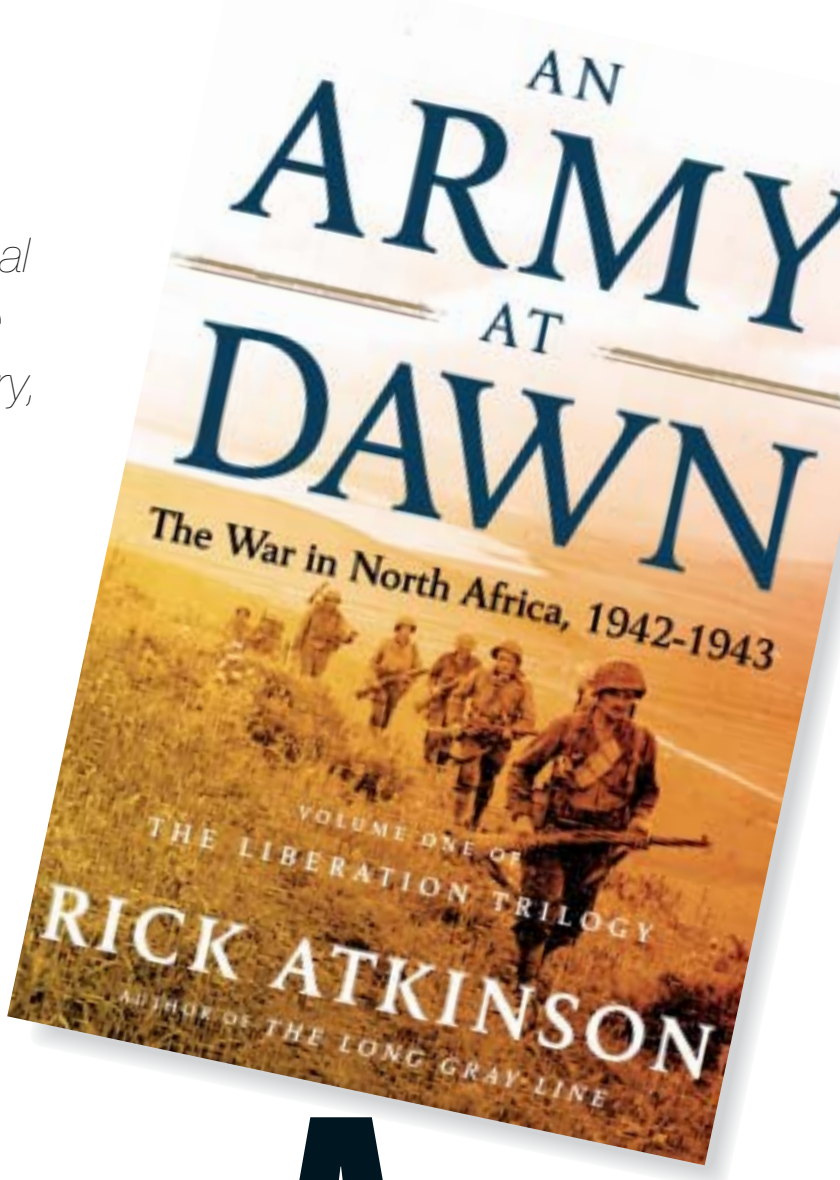
"Conducting two days of basic airborne refresher training with the Saudis was a big step toward building cooperation and confidence between their jumpers and ours," said LTC John E. Bokor, plans and operations adviser to the Saudi land forces. "This gave us all a chance to see our similarities and differences."

"Their procedures were a little different from ours, but they were still professional and safe," said LTC Phillip Maxwell, USMTM's director of mission relations.

"We will always cherish this experience," Capt. Hythem Mohammed Al-Fhaid, a Saudi special forces instructor, said after the jump.

"This is just the beginning," said U.S. Air Force Maj. Gen. Michael N. Farage, chief of USMTM. "We're going to continue to build on this relationship and look at creative ways to conduct meaningful training with the Airborne Special Security Forces School and Center." — *CPT Matthew J. Yandura, USMTM PAO*

This is the first in a planned series of occasional interviews with authors whose works spotlight the Army's history, culture and operations.



THE Dawn OF THE Modern Army

Interview by Steve Harding

FEW civilian journalists have spent as much time around the Army as Rick Atkinson has, and fewer still understand the service's history and culture as well as the veteran reporter and bestselling author does.

The son of a career Army officer, Atkinson was born in Munich and grew up on Army posts in Europe and the United States. He won the 1982 Pulitzer Prize for national reporting for his series of articles in the Kansas City Times on the West Point Class of 1966, which formed the basis for his best-selling book "The Long Gray Line: The American Journey of West Point's Class of 1966." His coverage of Operation Desert Storm formed the basis for his equally popular "Crusade: The Untold Story of the Persian Gulf War."

Now on leave from his position as assistant managing editor at the Washington Post, Atkinson has embarked on what he considers his most ambitious project, a three-volume history of the U.S. Army's World War II crusade against Nazi Germany. The first volume, "An Army at Dawn," covers the war in North Africa in 1942 and 1943 and is to be published this month by Henry Holt and Co.


Rick Atkinson

Q What was the genesis of this trilogy?

A Stories of World War II and the Army's role in it were part of my upbringing. Growing up on Army posts, particularly in the 1950s and 1960s, World War II wasn't history, it was a very real and current thing. There were many combat veterans still in the Army, and it was part of the lore of the institution.

This project actually began in about 1994, when I was the Berlin bureau chief for the Washington Post. Living in Europe at that time I was able to experience many of the 50th anniversary commemorations of the war.

And being able to visit the sites and cover the events really helped me realize that WWII and the liberation of Europe were the greatest stories of the 20th century. I also realized that much of the American public's interest in the war has been focused mainly on the period from the Normandy landings to the end of the war. But I don't believe you can understand what happened at Normandy and afterward unless you understand what came before.

While looking for a format in which to tell the story, it occurred to me that the story of the war in Europe could be pretty neatly broken into three pieces, and that each of the pieces informed the other.

I began work on the book in earnest while I was still in Europe. I came back to Washington in 1996 and kept reading and working on the book, making myself into something of an historian. Then the publisher Henry Holt expressed interest in my concept of a trilogy, so in January 1999 I took leave from the Post and began working on the project full-time.

Q Why is the North African campaign important in the larger history of the Army's WWII operations?

A North Africa was a testing ground in which the American Army was able to explore its own capabilities and flaws, and then apply the lessons learned to later, larger battles.

You have to remember that there wasn't a single general officer in the U.S. Army in 1942 who'd held a position as high as division commander in World War I, so even those who'd had substantial combat experience in that war hadn't had substantial command experience. So, the relatively low-intensity combat American units experienced in North Africa was precisely the kind of introduction to modern warfare that the Army needed at the time.

Probably the greatest gift the North African campaign gave the U.S. Army was that it prevented us from making a premature attempt to invade France. I believe that if we had tried an invasion in 1942 or 1943, it would have been a catastrophe, with enormous casualties. There was the opportunity in North Africa to work out a lot of kinks in terms of training, operations, logistics and the development of combat leaders.

(continued on page 46)

The second volume of Rick Atkinson's WWII trilogy is due out in 2006, and the third in 2009.

Ranger CPLs Robert Bevin and Earl Drost were among the soldiers who engaged French troops during the initial landings.

Q It seems that this first volume focuses quite a bit on the characters of individual commanders and soldiers, and on the interactions among them.

A Yes, it does, because I'm interested in personalities and the interplay of personalities.

I believe that war is a great revealer of character — the stresses of command and the stresses of daily combat really strip away pretension. That's the essence of the story I'm trying to tell. Who are these men? How do they evolve as the campaign progresses? What makes some succeed, and others fail? And what role did those early successes and failures play in shaping the Army's actions later in the war?

Q This is a huge chunk of history to bite off. It's a tremendous range of source material, and it would seem that the charting of the course through the project was probably one of the most difficult parts of the job.

A Yes, it is a huge project. I had the good fortune that North Africa, at least, is something you can "get your arms around." There were only four Army divisions involved, and they were really interesting units peopled by very interesting characters.

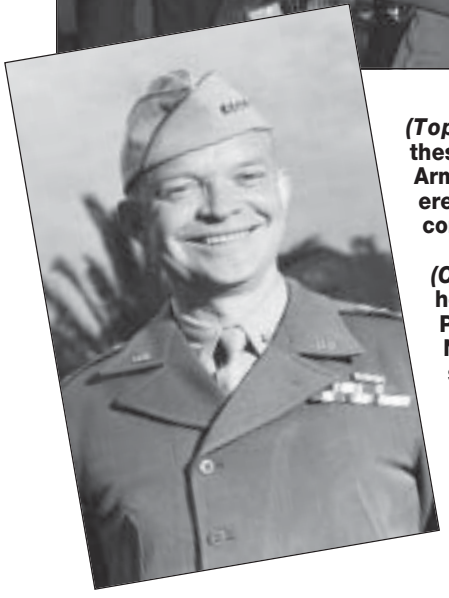
North Africa wasn't the sort of enormous industrial enterprise that the war later became. And that allowed me as a fledgling historian to learn my craft, to learn where the documents are, and understand the relationships between documents here in the U.S. and those overseas.

Q Did you find the various Army centers of historical research to be useful in the writing of this first volume?

A The Army history program has been tremendously helpful. If you're willing to work your way through the file cabinets and all the material that's available, the Army's history centers are an amazing repository of great material — including many unpublished historical studies of the Army's various activities in World War II.

I spend a lot of time at the Center of Military History in Washington and the Military History Institute at Carlisle Barracks in Pennsylvania. And every time I've visited I've gotten wonderful cooperation and assistance.

(continued on page 47)



(Top) **American tank crews, like these men from 2nd Battalion, 13th Armored Regiment, quickly discovered their vehicles' weaknesses in comparison to German tanks.**

(Center) **GEN Dwight D. Eisenhower pins a third star on George Patton — one of the stars of the North African campaign — shortly after Patton took command of II Corps in Tunisia in March 1943.**

(Left) **Eisenhower, seen here in Algeria in April 1943, later commanded allied forces in the 1944 Normandy landings.**

Q Have you been able to draw any conclusions about the ways in which WWII may have influenced the development of today's 21st-century Army?

A The Army is a living thing, and it has a personality that evolves and grows as a human's would. And WWII was tremendously important to the Army's development.

You see in the Army that comes out of North Africa and goes to fight in Sicily and Italy the genesis of today's Army. You see the handing of responsibility to junior officers, and the ruthless sorting out of competent and incompetent leaders. You don't often get a second chance to excel as a combat leader in today's Army, and that started in WWII — if you couldn't cut it as a combat commander the very first time you faced the enemy, you were out. And you rarely got a second chance.

The whole notion that a commander has a sacred responsibility for his soldiers' well-being also developed in WWII and remains part of the Army's credo today. The relationships in today's Army between officers and NCOs is one of the great strengths of the Army, and you can see it evolve during WWII.

A soldier's dedication to the man on either side of him and the willingness to sacrifice for a comrade are vital in any army. And I believe that spirit, which developed in the Army in WWII, is still present today. That soldier ethic is an important and sacred thing, and I think it needs to be more fully understood and appreciated by American civilians.

And, finally, this book points out that if you're going to fight a global war, whether against the Nazis or against international terrorism, you must have allies. You must be able to get along with those allies and you must understand that different armies do things differently. Any incapacity to do that, or the belief that we can go it alone, is a recipe for failure. □

Around the Services

Compiled by SSG Alberto Betancourt from service reports

Coast Guard

The U.S. Coast Guard has awarded a landmark $11.04 billion contract for a fleet of new ships and aircraft, plus improved command-and-control systems, to meet the service's homeland-security requirements and other mission needs for the next 20 years. Additionally, $5.91 billion was allocated for operation, maintenance and sustainment costs.

Air Force

In July, Gen. Benjamin O. Davis Jr., the first black Air Force general, was buried at Arlington National Cemetery with full military honors. Davis commanded the all-black 99th Fighter Squadron, nicknamed the "Tuskegee Airmen," and later commanded the all-black 332nd Fighter Group. He graduated from the U.S. Military Academy in 1936.

Navy

The Navy has released all sailors remaining on duty under the stop-loss program. The Navy terminated stop-loss because fleet input indicated commands were properly manned to respond to current and projected operational requirements. The secretary of the Navy will continue to review the need to use stop-loss as the current national emergency continues.

Marines

Marine Reservists and sailors recently conducted a multi-national crisis-response exercise with the Baltic nations of Estonia, Lithuania and Latvia. The exercise focused on establishing command-and-control systems in crisis situations, enhancing cooperation among various authorities and international organizations, as well as promoting cooperation between the various defense forces. The exercise was in keeping with NATO's criteria to show the countries' ability to work in a joint-nation operation.

Sgt. Jennifer M. Antoine, USMC

☆ U.S. Government Printing Office: 2002—491-540/60005

The Corps Engages: WACs and the Bomb

THE U.S. government's mission to produce an atomic bomb during World War II was assigned to the U.S. Army Corps of Engineers in mid-1942. Under the command of BG Leslie R. Groves, the New York City-based Manhattan Engineer District began a construction effort that would include production sites across the United States. While significant numbers of civilian women served at all project sites, most of those assigned to the MED were enlisted soldiers and officers of the U.S. Army.

During World War II, more than 150,000 women served in the Women's Army Corps, and WACs assigned to the Corps of Engineers participated in the Manhattan Project. As early as 1943, female soldiers were brought into the MED to undertake clerical, technical and other administrative work. The need for additional personnel led to the establishment of a Manhattan District WAC Detachment on June 3, 1944. By the end of the war, more than 400 WACs served in the Manhattan District.

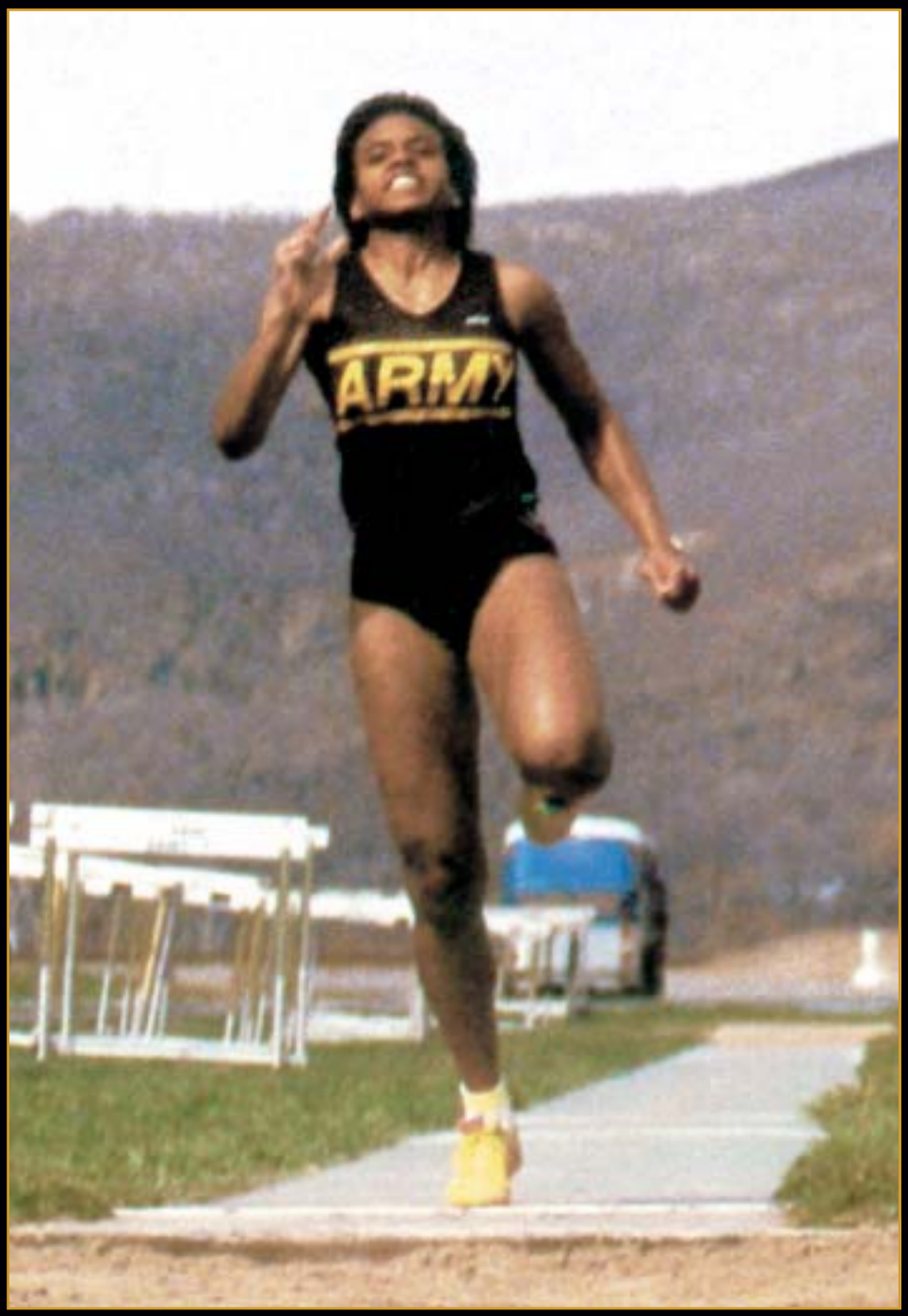
The four-year-long research-and-development project, completed at a cost of $2 billion, was the most expensive U.S. public works effort undertaken to that point. Three atomic bombs were produced by the summer of 1945, all of which were detonated by the end of the war.

U.S. Army Corps of Engineers, Office of History.

Manhattan District WAC Detachment

Among the tasks assigned to the WACs was operating the calutrons at the Electromagnetic Separation Plant in Oak Ridge, Tenn.

The calutrons required constant attention to keep the ion beam at a maximum.



Diana Willis

WILLIS was a 12-time All-American long and triple jumper. She holds the academy's indoor and outdoor triple-jump record, as well as the outdoor long-jump record. Willis earned a spot on the 1996 Olympic squad in the triple jump after finishing third at the trials. She's currently an Army Reserve captain in Texas.

CLASS OF '90